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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

BEFORE THE HONORABLE WILLIAM H. ALSUP

ORACLE AMERICA, INC.,)	
)	
Plaintiff,)	
)	
VS.)	No. C 10-3561 WHA
)	
GOOGLE, INC.,)	
)	
Defendant.)	San Francisco, California
)	May 14, 2012

TRANSCRIPT OF JURY TRIAL PROCEEDINGS

APPEARANCES:

For Plaintiff:	MORRISON & FOERSTER 755 Page Mill Road Palo Alto, California 94304
BY:	MICHAEL A. JACOBS, ESQUIRE KENNETH A. KUWAYTI, ESQUIRE MARC DAVID PETERS, ESQUIRE DANIEL P. MUINO, ESQUIRE
	BOIES, SCHILLER & FLEXNER 333 Main Street Armonk, New York 10504
BY:	DAVID BOIES, ESQUIRE ALANNA RUTHERFORD, ESQUIRE

(Appearances continued on next page)

Reported By: Katherine Powell Sullivan, RPR, CRR, CSR #5812
Debra L. Pas, RMR, CRR, CSR #11916
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Katherine Powell Sullivan, CSR, CRR, RPR
Debra L. Pas, CSR, CRR, RMR
Official Reporters - US District Court - 415-794-6659

APPEARANCES (CONTINUED):

For Plaintiff:

BOIES, SCHILLER & FLEXNER
1999 Harrison Street, Suite 900
Oakland, California 94612

**BY: WILLIAM FRED NORTON, ESQUIRE
STEVEN C. HOLTZMAN, ESQUIRE**

ORACLE AMERICA, INC.
500 Oracle Parkway
Redwood Shores, California 94065

**BY: ANDREW C. TEMKIN, CORPORATE COUNSEL
DORIAN DALEY, GENERAL COUNSEL**

For Defendant:

KEKER & VAN NEST
633 Battery Street
San Francisco, California 94111-1809

**BY: ROBERT ADDY VAN NEST, ESQUIRE
MATTHIAS ANDREAS KAMBER, ESQUIRE
EUGENE MORRIS PAIGE, ESQUIRE
CHRISTA MARTINE ANDERSON, ESQUIRE
MICHAEL S. KWUN, ESQUIRE**

KING & SPALDING LLP
1185 Avenue of the Americas
New York, New York 10036-4003

**BY: BRUCE W. BABER, ESQUIRE
SCOTT T. WEINGAERTNER, ESQUIRE**

GOOGLE, INC.
1600 Amphitheatre Parkway
Mountain View, California 94043

BY: RENNY HWANG, LITIGATION COUNSEL

Also Present:

SAFRA CATZ, President and CFO
Oracle Corporate Representative

CATHERINE LACAVERA
Google Corporate Representative

P R O C E E D I N G S

MAY 14, 2012

7:29 a.m.

(Proceedings held in open court, outside
the presence and hearing of the jury.)

THE COURT: Good morning, please have a seat.

So stipulation -- I have a list here things here you
filed over the weekend.

Stipulation to try patent willfulness in Phase 2.
That seems okay with me, but I just want to make sure I
understand it before we jump off the cliff. How will this
effect the evidence part?

MR. JACOBS: We have a -- I think we have a little
evidentiary dispute about how it will affect the evidence.
That order that we agreed to says that only if we, in our case,
do more than Google anticipated the question of willfulness,
would they do more in their case. And we had an exchange of
our plans and now at the last minute Google has proposed,
depending, I think, on how the instruction comes out on
willfulness, to put in evidence of the reexaminations before
this jury to prove non-willfulness.

We object. There is an order from the Court on in
limine motions, on the use of reexaminations. Willfulness was
going to be in this trial, whether in Phase 2 or Phase 3. That
order still applies and the reexamination should not come in.

1 I will not argue in my closing the abandonment of
2 invalidity defenses as evidence of willfulness. I will be
3 arguing the pattern of conduct by Google and the strength of
4 our infringement case. So I will not open the door in that
5 sense to the reexamination argument.

6 Otherwise, I think we are squared away on how the
7 willfulness stipulation will effect the evidence.

8 **MR. VAN NEST:** Good morning, your Honor. Mr. Jacobs
9 is right. There is just that one issue. And my only
10 reservation is I would like to have some indication in whatever
11 willfulness instruction that you give that willfulness is to be
12 measured prior to the -- prior to the time the lawsuit was
13 filed.

14 I understand Mr. Jacobs isn't going to argue anything
15 about post-litigation conduct, and the only reason I raise it
16 at all is to defend myself if post-litigation conduct is going
17 to be an issue. And so this relates to another issue that
18 we're discussing with respect to verdict form and jury
19 instructions, which I'll get to in a minute.

20 But my main point, I think Mr. Jacobs has satisfied
21 me that there is not going to be any argument that would
22 require me to put this in. As long as there is some indication
23 in the willfulness instruction that it's to be evaluated, you
24 know, prior to the time of the lawsuit, then I'm fine with
25 that.

1 **MR. JACOBS:** I don't want to mislead the Court or
2 Google's counsel. We are proposing an instruction that has in
3 it the continuing conduct after they were put on notice, and I
4 will argue that the testimony from Mr. Rubin that no changes
5 were made after the notice of the July 20th, 2010 does go to
6 willfulness. So there will be an issue for the Court to
7 resolve, I suspect.

8 The parties have been -- let me back up. The parties
9 have been working on the willfulness instruction. I think
10 we're quite close. There are a couple of specific issues.
11 Maybe the right thing to do is tee up the issue in the form of
12 the instruction to the Court and then the evidentiary issue
13 that we're debating before you should settle out.

14 **MR. VAN NEST:** I think it would.

15 **MR. JACOBS:** Sorry?

16 **MR. VAN NEST:** I think it would.

17 **MR. JACOBS:** Yeah.

18 **THE COURT:** I don't understand where this leaves us.
19 You two are disagreeing on whether or not post-complaint
20 conduct can be taken into account for willfulness?

21 **MR. VAN NEST:** I'm not sure that we are, your Honor.
22 I know that post-notice conduct -- remember, that notice was
23 given on July 20th. And so I acknowledge that between July 20
24 and August 12, when the lawsuit was filed, that's in play.

25 I'm not sure Mr. Jacobs is arguing that post-lawsuit

1 conduct would be relevant.

2 **THE COURT:** All right. Let's find out. I thought I
3 heard you say that you thought it was.

4 **MR. JACOBS:** Yes. The instruction we'll propose --

5 **THE COURT:** What is the law on this though?

6 **MR. JACOBS:** It goes both ways, your Honor. I think
7 they will have cases to cite and we will as well.

8 **THE COURT:** What does *Seagate* say on this point?

9 **MR. JACOBS:** *Seagate* says that ordinarily conduct
10 before litigation is what's relevant.

11 **THE COURT:** Well, why don't we go with what is
12 ordinary?

13 **MR. JACOBS:** Because this is extraordinary, or so I
14 assert. Because we have such a pattern of conduct here by
15 Google, and we have notice on July 20th, and then the
16 lawsuit -- and then the --

17 **THE COURT:** But July 20th, on a gigantic thing like
18 this and three weeks later you expect them to be on top of all
19 of this? I don't know. Why is that he extraordinary?

20 **MR. JACOBS:** Because there's an email a couple of
21 weeks later that says, "We need to take a license."

22 **THE COURT:** Well, I don't know about that.

23 **MR. JACOBS:** And because we have a pattern beforehand
24 of knowledge of the existence patents generally. It's the
25 whole pattern of activity, your Honor.

1 **THE COURT:** But the Lindholm email doesn't say, "My
2 God, look at this '520 patent." "My God look at this '104
3 patent. We're in such big trouble." I bet you Mr. Lindholm
4 never heard of those two patents.

5 **MR. JACOBS:** Well, recall that Mr. Lindholm --

6 **THE COURT:** Hmm?

7 **MR. JACOBS:** There is evidence on this point.

8 **THE COURT:** Did he ever even hear of these two
9 patents?

10 **MR. JACOBS:** Well, remember that he writes the
11 chapter of the book that has the '685 in it, which relates to
12 the '104.

13 **THE COURT:** That part is true. That is a point that
14 I had forgotten.

15 I don't know the answer to this. This is a moving
16 target. I don't think you have a stipulation yet.

17 Now, if you two want to stipulate that willfulness
18 for patent is in the case and it's up to me to decide this
19 other issue, that's okay. But the way you pitched it, it's
20 your stipulation is contingent on how this comes out.

21 **MR. JACOBS:** No, no. We didn't intend that, your
22 Honor. We both agree that this is a decision for you. The
23 specific issue right now -- I guess, there are two specific
24 issues before you: Will the instruction be limited to conduct
25 before the litigation was filed or non-conduct before the

1 litigation was filed? And, relatedly, will Google be allowed
2 to introduce evidence -- there are several evidentiary
3 objections to what Google plans to do, including the fact that
4 Dr. August, who they plan to put the reexam in through, had
5 nothing in his report about the reexaminations.

6 So the related issue, though, is whether Google will
7 be allowed to put in evidence of the reexaminations to the
8 jury. Their reason for doing so is to prove non-willfulness
9 after the litigation was filed.

10 I'm perfectly happy -- we're perfectly happy to have
11 you resolve those, as you would in the ordinary course, if
12 willfulness was in Phase 2, albeit with apologies for the
13 ordinary course being a bit -- being excite accelerated here
14 because of where we are in the sequence.

15 **THE COURT:** Well, that was too long an answer. So I
16 need to say this. Will you both stipulate that willfulness on
17 the patent -- I need to back up.

18 Is there -- this is a preliminary question. Is there
19 such a thing as willfulness indirect infringement or can it
20 only be for direct infringement?

21 **MR. VAN NEST:** I think it's only for direct
22 infringement, your Honor. But as we're going to mention in a
23 moment, that may not be relevant any more either.

24 But with respect to your stipulation request, yes.
25 The stipulation is unconditional to put patent willfulness in

1 Phase 2 and your Honor will resolve the jury instruction issue
2 and the evidence issue as you would in the ordinary course.
3 It's not conditional.

4 **THE COURT:** And, also, resolve whether it applies to
5 indirect?

6 **MR. VAN NEST:** That's right.

7 **THE COURT:** So you are willing to put willfulness in
8 with some of these issues -- all of these issues still in play?

9 **MR. VAN NEST:** Sure.

10 **THE COURT:** How about the plaintiff?

11 **MR. JACOBS:** Agreed, your Honor.

12 **THE COURT:** All right. Then it will go to the jury.
13 And I'll just have to decide -- in Phase 2. I will have to
14 decide these other issues.

15 All right. Well, I don't know whether -- I can see
16 these possibilities: That it's measured only before the
17 litigation; it's measured after the litigation, or it's
18 measured only before the litigation, but you can consider
19 post-conduct -- post-filing conduct to shed light on pre-filing
20 mental attitude.

21 So that the Lindholm thing could be argued even
22 though it would be a slightly harder burden to prove because it
23 would have to reflect backwards on the time period before the
24 lawsuit. So those are three different scenarios.

25 You need to brief that, I don't know the answer to

1 that.

2 **MR. JACOBS:** Just to be clear, your Honor. The
3 Lindholm email itself is before the lawsuit.

4 **THE COURT:** I didn't know that. When is it?

5 **MR. JACOBS:** It's a couple of days before the lawsuit
6 is filed.

7 **THE COURT:** Then why do you care whether or --

8 **MR. JACOBS:** Because to say -- so the internal
9 deliberations at Google before the lawsuit are, "We need a
10 license." The lawsuit is filed to say that you can't consider
11 the fact that they didn't negotiate a license or stop the
12 infringing conduct in the weeks and months subsequent to that
13 when the internal email said, "We need a license," is to impose
14 an artificial deadline, notwithstanding *Seagate's* language on
15 this analysis of Google's state of mind.

16 **THE COURT:** You all need to brief it. I don't -- so
17 how the instructions are going to read on that point, I'm not
18 quite sure.

19 Now, meanwhile my law clerk and I had come up with
20 some instructions. Here. Why don't we just hand out the -- it
21 doesn't take into account that timing issue, but we take into
22 account a number of other things.

23 (Whereupon document was tendered
24 to counsel.)

25 **MR. VAN NEST:** This is a full set on the patent?

1 **THE COURT:** Yes. It's a full set, but No. 24 --
2 there are a couple of changes. One deals with clear and
3 convincing evidence standard now that we have willfulness in.
4 The other deals with the willfulness instruction. And then the
5 special verdict form, I think the way we have it set up now,
6 willfulness would cover both indirect and direct. But I,
7 myself, am not certain of that and I invite your views on it.

8 Are we going to finish the evidence today?

9 **MR. JACOBS:** Yes, your Honor. And we'll look quickly
10 at this form of instruction, but it may be that you, by this
11 proposal, just lanced the boil here on the dispute and we may
12 be able to move on quickly.

13 **THE COURT:** I didn't mean to on the timing point. If
14 I did that, it was inadvertent. So I'm not ruling on that.

15 All right. What else -- oh, there were many things.
16 So that's where we are on that one. So I will -- I'm just
17 going to rule that you both had put the willfulness issue in
18 and it's up to me to decide about evidence. So, you know,
19 these -- so this thing -- the form of your stipulation you have
20 abandoned, right?

21 **MR. JACOBS:** Well, if --

22 **THE COURT:** Because you're now -- now, if you're
23 going to go back and put in conditions on your stipulation --

24 **MR. JACOBS:** There are no conditions on it, your
25 Honor.

1 **THE COURT:** It says in writing: "Should Oracle
2 introduce additional evidence relating to willfulness, Google
3 will have the right..." So --

4 **MR. JACOBS:** That was in agreement on our part that
5 if we -- to assure Google that if we changed our willfulness
6 plans, they could put in more evidence, but our willfulness
7 haven't changed. They are making no allegation that our plans
8 have changed.

9 **THE COURT:** So you're saying they can't now put in
10 evidence on willfulness?

11 **MR. JACOBS:** Of course, they can put in the evidence
12 on willfulness that was in the record already. They can argue
13 the evidence on willfulness that was in the record already.
14 They can continue to develop their non-infringement defense.

15 The reexamination issue surfaced last night in an
16 email in which Google said, "Oh, we're going to put the
17 reexaminations before Dr. August."

18 **THE COURT:** Well, is that the only thing that is in
19 dispute, is the agreed thing on relevance?

20 **MR. VAN NEST:** Yes, your Honor.

21 **THE COURT:** Or are there other issues?

22 **MR. JACOBS:** No other issues that we're aware of.

23 **MR. VAN NEST:** No, I don't believe so.

24 **THE COURT:** How does reexam have to do with -- well,
25 all right. I see how it works in. You can say this. The

1 argument would go like this. If plaintiff wants to say, "Look
2 at all this time period when the litigation was underway and
3 they didn't change a thing, they just kept right on going,"
4 that leaves the false impression because we all know that the
5 PTO said it was subject to reexamination and threw the claims
6 out, at least temporarily, on '104 and '520. Is that your
7 argument?

8 **MR. VAN NEST:** Yes.

9 **THE COURT:** What's wrong with that argument?

10 **MR. JACOBS:** There is no validity challenge in this
11 trial. And so the -- for purposes of this trial validity is
12 not at issue.

13 Neither party has put in evidence when -- on
14 validity. When Google abandoned its invalidity defenses here,
15 we all focused on infringement. So now to rifle shot the
16 question of reexamination and the PTO reexamination,
17 particularly when, in the case of the '520, it was -- it was --
18 the claims were confirmed. And in the case of the '104
19 Mr. Van Nest got up and protested vigorously when I even
20 adverted to the fact that there had been a single reissue grant
21 on the '104.

22 Now, all of a sudden to throw the reexams in --

23 **THE COURT:** Give me the history on the '104 before
24 the PTO on reexam.

25 **MR. JACOBS:** The '104 patent was reissued twice:

1 Once in the exact lineage that's on the cover page of the '104
2 patent itself, and once in a sort of a side path that's in the
3 file history. So that's the pre-history, previous to the
4 litigation.

5 So as of -- as of the beginning of the lawsuit, as of
6 the notice of the patents, what they were looking at was a
7 patent that had twice been reissued and confirmed by the Patent
8 Office. What's happened so far is a preliminary rejection.
9 The Court ruled in the in limine motion that preliminary
10 rejections are probative of very little.

11 So then what we're relying on is the fact that they
12 initiated a reexamination and the reexamination petition was
13 granted, but we all know that's probative of very little.

14 The logic behind the Court's ruling on
15 reexaminations, as reflected in the opinion and our discussion,
16 was to try to explain all this to the jury, the reexamination
17 process, how much probative weight to give to various steps.
18 What to say to the jury about the significance of a preliminary
19 rejection is to create a kind of a mini trial about the status
20 of reexaminations that is outweighed by the lack of probative
21 value of those developments.

22 **THE COURT:** After the preliminary rejection, what
23 happened?

24 **MR. JACOBS:** So in the '104? The case has been
25 interviewed and the -- there is an examiner's summary that has

1 been provided to Google, and we await next action by the
2 examiner.

3 **THE COURT:** What do you have to add to that?

4 **MR. VAN NEST:** Only this, your Honor. That, again,
5 if the normal rule applies from *Seagate* and your conduct is
6 evaluated prior to the lawsuit, then this problem goes away.
7 I don't need to put this in if that's going to be the rule. If
8 it's not, then I think the reexam goes to the objective prong
9 of willfulness because you have to have a reasonable belief
10 that you're infringing a valid patent. And it would go to, you
11 know, the idea that if they are saying Google didn't do a
12 thing, well, in fact, the PTO declared the '104 invalid, which
13 is what it is right now.

14 **THE COURT:** What happened on the '520?

15 **MR. VAN NEST:** The '520 is through the PTO and it's
16 out -- it's done in the PTO. So there is no issue on the '520.

17 Again, my view is that there is nothing extraordinary
18 about this. They can argue the Lindholm email. It's
19 pre-lawsuit, as Mr. Jacobs observes. And I can argue that we
20 didn't have any notice prior to July 20, and that's three weeks
21 before they filed, and that's the way it should be and then the
22 reexam doesn't come into play at all.

23 **MR. JACOBS:** One other fact that may be helpful. The
24 reexaminations are not filed until the winter of 2011. The
25 first one is in February of 2011. So there is a considerable

1 period of time where nothing happens in the -- by way of Google
2 affirmative action in the Patent Office to seek an invalidity
3 finding.

4 **THE COURT:** Well, but when did Google decide that it
5 would seek reexams? Even though they didn't do it right away,
6 it probably took some time to evaluate that.

7 **MR. JACOBS:** There is nothing in the record on that,
8 your Honor. It would be Google's deliberate -- internal
9 deliberations that would --

10 **THE COURT:** Well --

11 **MR. JACOBS:** (Continuing) -- need to be exposed.

12 **THE COURT:** All right. Anything more anyone wants to
13 say on this general subject?

14 **MR. JACOBS:** No, your Honor.

15 **THE COURT:** Here is the answer. This is going to be
16 a mess if we get into post complaint. So no post complaint.
17 Period.

18 We're going to go with the ordinary rule under
19 *Seagate* and we will craft a sentence in the jury instruction
20 that tells them not to speculate about events that occurred
21 after the filing of the complaint and that the period for
22 proving willfulness is up to the date of the complaint.

23 And here is my reasoning. When somebody gets sued in
24 a patent case, it's possible they want to assert invalidity.
25 It's possible that they are going to assert that in the PTO and

1 try to get the thing thrown out. They don't have to do it on
2 both tracks. And, so that's what Google did here. They went
3 to the PTO to try to get this thrown out. Maybe they had bad
4 faith, maybe they had good faith. They had pretty good luck in
5 getting a lot of these invalidated in the PTO.

6 So if we go down that path, I think a lot more
7 evidence will come in. Mr. Jacobs is right, that a preliminary
8 rejection does not prove much, but it proves -- whatever it
9 proves, it proves in the direction of Google and when you're
10 talking about subjective bad intent, every little bit helps.
11 And this would be an important factor for Google to have to
12 argue if we were going to allow post complaint conduct.

13 It's just not true that they didn't do anything.
14 They did do something. They went to the PTO to try to get
15 things thrown out through reexam.

16 So the ruling is going to be, we measure things up to
17 the date of the filing of the complaint. So I hope that solves
18 some of our problems.

19 **MR. JACOBS:** I think that resolves the only issue we
20 were aware of going into this -- that has arisen as a result of
21 the willfulness stipulation.

22 **THE COURT:** All right. Good.

23 Now, now we go to your -- I'm just going to rule now
24 that willfulness is part of this Phase 2. Please plan
25 accordingly.

1 And you need to give me briefing on whether
2 willfulness applies to direct as well as indirect. Right now
3 I've got it set up to apply to both.

4 Oracle has a proposed change on dynamic static
5 numeric, more claim construction. And anything more that
6 anyone want to say on this subject?

7 **MR. JACOBS:** Your Honor, the motion that we filed
8 really started out as a renewal of the objection that we had
9 had earlier made in the Markman context, and then we realized
10 that there is a chance to clean this up at this stage and avoid
11 possible legal error.

12 So it is in that context that we proposed that the
13 adverb be turned back into an adjective and that we not confuse
14 the jury as to when -- as to what is symbolic and numeric
15 references.

16 The other point I think -- Google's response
17 indicates they may or may not argue that a symbolic reference
18 cannot be a number because they -- in the first in the first
19 half of their opposition they say, "We're not going to argue
20 this," and then they say, "Dr. August is going to put in
21 testimony that in Java, at least at the source level, a
22 variable must be declared with letters and not numbers."

23 So I'm not sure whether that's alive issue or not,
24 but it would be worth exposing it and making sure we're -- that
25 there is clarity.

1 **MR. KAMBER:** Your Honor, very briefly. With respect
2 to the second issue about whether a number can be a symbolic
3 reference or a numeric reference, that's not Dr. August's
4 argument. And he can address either on cross-examination, or
5 I'm happy to elicit on direct, whether sort of in the abstract
6 a number can be a symbolic or a numeric. But Dr. August's
7 testimony was, I think, pretty clear on Friday that the reason
8 he's saying that there are no symbolic references in the
9 instructions is an index points to a -- the location of data.
10 It has nothing to do with the fact that it's a number versus it
11 being a string. It has everything to do with the fact that it
12 satisfies or does not satisfy the Court's claim construction of
13 symbolic references.

14 With respect to -- sorry, your Honor.

15 **THE COURT:** Go ahead.

16 **MR. KAMBER:** With respect to the other issue about
17 the claim construction and the modifications, we simply think
18 this is far too late in the game to raise this issue. It's
19 also inconsistent with the testimony of Dr. Mitchell, who
20 expressly talked about dynamic and static, and dynamic being
21 runtime. And now they seem to want it to mean something else,
22 which I frankly don't understand.

23 **MR. JACOBS:** On that last point, your Honor, I think
24 we're misunderstanding basic rules here of set theory.

25 Dr. Mitchell has argued that runtime meets the

1 definition of dynamically. That's not the same as saying that
2 dynamically is limited to runtime.

3 **THE COURT:** I'm going to postpone ruling on this for
4 now because let's get through the expert's testimony and I will
5 make a final ruling later on.

6 Next we go -- I'm going to take an easy one. There
7 is one to admit interrogatory responses. You can read the
8 entire interrogatory answer, and then if you want to, after
9 reading the entire answer, you want to focus the jury's
10 attention on one sentence or one paragraph, you can go back and
11 repeat that.

12 But how long is this entire answer? Is it more than
13 a page?

14 **MR. BABER:** I believe it's five or six pages, your
15 Honor.

16 **THE COURT:** Well, then you can -- what's wrong
17 with -- why can't you just read the last paragraph as well as
18 what it is that you want to focus on?

19 **MR. NORTON:** After excluding the objections, it's two
20 pages on. But I think that if -- much of that information will
21 not be particularly meaningful to the jury.

22 **THE COURT:** All right. Well, then, but they want to
23 have their last paragraph read, right? Why can't you read
24 that, too?

25 **MR. NORTON:** The last paragraph? I think reading the

1 last paragraph would not be a problem. If the objection was
2 all about reading only the last paragraph of the interrogatory
3 response then that would resolve the issue.

4 **THE COURT:** What's wrong with that?

5 **MR. PURCELL:** We're fine with admitting the
6 objections. We would like to have the entire interrogatory
7 response read --

8 **THE COURT:** You can read the entire think in your
9 part. They can read the part they want and then the rest of it
10 will come out of your time. All right. That's the answer on
11 that.

12 Motion to delay adjudication of copyright damages.
13 We don't have to actually resolve this today.

14 Motion for damages on copyright disgorgement. That's
15 sort of related to that.

16 Then let's go to the last one. Google's proposed
17 changes to jury instructions. Didn't I reject most of your
18 arguments at the charging conference?

19 **MR. PURCELL:** Your Honor, you did reject some of
20 them. I believe with respect to instruction --

21 **THE COURT:** What is the one that you've got the most
22 heartburn about? Just give me your best shot.

23 **MR. PAIGE:** Well, I'd give you my best shot on
24 Instruction 23, your Honor, but I've given it to you a few
25 times now.

1 **THE COURT:** What's the issue? Remind me which one?

2 **MR. PAIGE:** It's the willful blindness instruction.

3 **THE COURT:** What do you object to?

4 **MR. PAIGE:** The entire thing; that it's not merited
5 by the facts of the case. But if it does go in, we think there
6 needs to be more context given letting the jury know that this
7 needs to go beyond negligence, deliberate indifference, and
8 there must have been active and not passive acts taken to avoid
9 learning of any patents.

10 **THE COURT:** It says, "Google took deliberate actions
11 to avoid learning of that fact." Isn't that the same thing
12 you're asking for?

13 **MR. PURCELL:** I think it's part of it, your Honor.
14 It doesn't emphasize that deliberate actions can't just be, as
15 Oracle has said it would argue, not doing something. Not
16 taking action is not a deliberate action, it's passive.

17 **THE COURT:** If you deliberately make a decision
18 you're not going to do something --

19 **MR. PAIGE:** That's not an active action, your Honor.

20 **THE COURT:** Yes, it is.

21 **MR. PAIGE:** No, it's not.

22 **THE COURT:** Well, who says that it's not?

23 **MR. PAIGE:** The decision not to do something, to take
24 no action, you know, if that's the case, there is no such thing
25 as passivity. You have decided not to do whatever you haven't

1 done and that's not the law.

2 **THE COURT:** Look, you have seen in the movies 100
3 times, you know, the -- some guy is about to tell them
4 something and they raise their hands and say, "I don't want to
5 know that. Stop. I don't want to know that. Don't tell me
6 that. If you tell me that, I would have to report you to the
7 FBI."

8 That's a deliberate action to avoid learning of a
9 fact.

10 **MR. PAIGE:** I don't think the testimony that was
11 elicited from Mr. Rubin saying that he did not tell anyone to
12 go out and do this is saying, "Someone suggested to me I go out
13 and do this. I said, no, no, no, don't do this. I want to
14 find out something I don't want to know." That's not what the
15 testimony was.

16 **THE COURT:** Why isn't that a good jury argument for
17 you?

18 **MR. PURCELL:** I think it is a good jury argument for
19 us, your Honor. It shouldn't have to be made at all because
20 it's not supported by the law.

21 **THE COURT:** Well, what I have said here in the
22 instruction is a correct statement of the law. Your point is
23 that the record is insufficient to demonstrate any of this.
24 That's a Rule 50 motion. That's not a quarrel with the
25 instructions.

1 **MR. PAIGE:** Well, your Honor, I think cases like
2 Apeldyn show that the facts of this case are insufficient to go
3 to the jury. It is a Rule 50 issue. It's a summary judgment
4 issue. It's something that should not be going to the jury in
5 the first place.

6 I would just note as well that in Model Rule 3-9 it
7 does have enhanced language of the sort we're talking about
8 here.

9 **THE COURT:** Thank you.

10 **MR. PAIGE:** Your Honor, just -- Instructions 19 and
11 20. You did not reject our contention that mobile service
12 providers are not in the case. You had asked Oracle to go back
13 and look and see where that was in the case. We still haven't
14 seen, as far as I know, any evidence that mobile service
15 providers are in the case, so that's another issue. But I
16 think perhaps that will be obviated by --

17 **THE COURT:** I don't know what you're talking about.
18 What are you talking about?

19 **MR. PAIGE:** Instructions 19 and 20, your Honor. We
20 had objected to the inclusion of mobile service providers as a
21 potential direct infringer for indirect infringement.

22 **MR. JACOBS:** There is a simple answer to that, your
23 Honor. Mr. Rubin testified that the Droid was made available
24 through Verizon. There is evidence in the record.

25 **THE COURT:** All of these motions are denied without

1 prejudice to Rule 50.

2 Yes.

3 **MR. COOPER:** Your Honor, John Cooper on behalf of
4 Dr. Kearl. If I might be heard?

5 Your Honor said that you were not going to address
6 the question of Oracle --

7 **THE COURT:** Maybe we should, since you're here and
8 he's here.

9 **MR. COOPER:** Yes. Dr. Kearl is here and Dr. Cockburn
10 is in the courtroom as well.

11 **THE COURT:** Who?

12 **MR. COOPER:** Dr. Cockburn, Oracle's expert. So we
13 would like some direction, if possible.

14 **THE COURT:** Well, all right. I will give you the
15 answer to this, unless somebody wants to be heard on it?

16 (No response.)

17 **THE COURT:** No one ask rising to the occasion.
18 Did you wish to be heard, Mr. Cooper?

19 **MR. COOPER:** No. We would just like some direction,
20 your Honor.

21 **THE COURT:** Well, if liability is established for any
22 of the patents, then we're going to have a damages Phase 3 on
23 patents. And in any event, we're going to have a damages phase
24 on the decompiled and the rangeCheck.

25 We are not going to have a damages phase on the main

1 copyright issue because liability has not by established for
2 that. The Court totally rejects Oracle's argument that it
3 has -- I don't even understand the argument, but I don't -- you
4 didn't want to argue it, so I'm quite clear on this.

5 You've got a favorable verdict on question three.
6 The time to stand and deliver on damages is Phase 3. If you
7 don't want -- if you don't want that or you want to go with --
8 I don't care. You're going to have the opportunity. You put
9 in your proof on Phase 3 on decompiled and rangeCheck, nothing
10 else, because no liability has been shown.

11 If you don't want to do that, that's your choice, but
12 that's the way it's going to be on damages. But we're not
13 going to get into the disgorgement on the main issue of 39
14 packages in the API because liability has not been proven on
15 that yet.

16 If the day ever comes when that is established, then
17 we will have a separate -- a new trial on that issue. So we're
18 going to have a damages phase on any patents on which
19 infringement is shown, and we will have a damages phase on
20 decompiled as well as rangeCheck.

21 There is a motion for summary judgment that is
22 directed at the copyright disgorgement on the rangeCheck and
23 decompiled. That is more properly brought as a Rule 50 motion
24 after all the evidence is put into the record.

25 So I will say this. I have already said it. There

1 is no way that the law should allow a disgorgement theory in
2 the billions or hundreds of millions of dollars over rangeCheck
3 or decompile, but Mr. Jacobs was trying to make it sound like I
4 was cutting off his day in court. I am going to let him stand
5 before the jury and present all of that evidence if he thinks
6 that that will improve his case on other issues.

7 I question that, but it's my tentative view that
8 there is no way the law would permit such an extreme,
9 super-extreme, hyper-extreme proposition.

10 So does that help you, Mr. Cooper?

11 **MR. COOPER:** Yes. Thank you very much.

12 **THE COURT:** All right. Thank you.

13 It's now time to bring back Professor August and to
14 resume with the jury. Let's see if the jury is here.

15 (Jury enters courtroom at 8:07 a.m.)

16 **THE COURT:** Welcome back and be seated, please. Hope
17 you all enjoyed Mother's Day weekend.

18 So the lawyers tell me that we will finish the
19 evidence today. Whether we get to the closing arguments or
20 not, I'm not sure. We'll see.

21 You will remember when we broke on Friday that we had
22 Professor August -- is that right August, like the month of
23 August.

24 **THE WITNESS:** Just like the month, your Honor.

25 **THE COURT:** He was on the stand testifying to things

1 such as what we see still see over there on that little diagram
2 and we have not finished his direct examination and then there
3 will be cross-examination of him.

4 I just want to get you back into the frame of mind
5 where we were when we broke. Everyone got your notepads ready?
6 You look like you're in great shape. Good.

7 Counsel, you may continue on.

8 **MR. KAMBER:** Thank you, your Honor.

9 **DAVID AUGUST,**

10 called as a witness for the Defendant herein, having been
11 previously sworn, resumed the stand and testified further as
12 follows:

13 **DIRECT EXAMINATION RESUMED**

14 **BY MR. KAMBER:**

15 **Q.** Good morning, Professor August.

16 **A.** Good morning.

17 **Q.** Let's see if we can't sort of pick up where we left off or
18 tried to, and let's pull up the claim construction of "symbolic
19 reference." It's slide 29 from your presentation.

20 (Document displayed)

21 **Q.** What is this?

22 **A.** This is the claim construction for "symbolic reference."

23 **Q.** Applying this claim construction, what is your opinion
24 whether dexopt and Resolve.c infringe of '104 patent?

25 **A.** It's my opinion that dexopt and Resolve.c do not infringe

1 the '104 patent.

2 Q. Why not?

3 A. Well, for at least the reason that they don't operate on
4 instructions that contain symbolic references.

5 Q. And that reason -- does that reasoning apply equally to
6 dexopt and Resolve.c?

7 A. Yes, it does.

8 Q. I want to pull up Mr. McFadden's demonstrative. We have
9 reproduced it on this board here.

10 (Demonstrative displayed)

11 Q. I don't know what's easier for you. If you want to stand
12 at the board and explain the references or just point to the
13 board from the stand, but I would like to have you walk
14 throughout the instructions and the other parts of the data in
15 the dexopt and explain whether a reference qualifies as a
16 symbolic reference under the Court's construction or as a
17 numeric reference?

18 A. Yeah. I'd like to come down.

19 (Witness steps down.)

20 THE COURT: Would it help to use the pointer?

21 MR. VAN NEST: I had it last, your Honor. It's right
22 here.

23 (Whereupon, the pointer was tendered
24 to the witness.)

25 THE COURT: This way you won't block the jury's view.

1 And why won't you tilt it more towards the jury and less
2 towards me. I can still see it. I want to make sure the jury
3 can see it.

4 Can everyone over there see it?

5 (Jury nodding affirmatively.)

6 **THE COURT:** All right. Great. Go ahead.

7 **BY MR. KAMBER:**

8 **Q.** Let's start with the Instruction stream, Dr. August. What
9 do we see in the Instruction stream on that demonstrative
10 exhibit?

11 **A.** Here we see the instructions divided by dashed lines. And
12 if you will recall from last time, the instructions contained
13 an OpCode. In this case the first instruction 52. And one
14 more zero, more operands. In this case we have a single
15 operand, 01.

16 **Q.** What is that single operand 01?

17 **A.** Well, let's employ the Court's claim construction to
18 figure out what this is. Okay. So on the screen we still have
19 the claim construction. Look at this. We see that it's "a
20 reference that identifies data." So that's the first part. A
21 reference that identifies data. So far so good.

22 So we have to ask the question: Does it do so "by a
23 name other than numeric memory location?" Looking at this, we
24 see that 01 actually refers to the location of the data 01.
25 This entry (indicating) is at memory location 01, so this is

1 referring to the data by numeric memory location.

2 So looking at the construction, we see that it
3 doesn't apply. So this is not a symbolic reference by the
4 Court's construction.

5 **Q.** When you say it's entry 01, where is that entry located,
6 Dr. August?

7 **A.** This 01 (indicating) is a reference located in the
8 Instruction stream.

9 **Q.** Where does the reference point to?

10 **A.** It points to an entry in the Field ID table in the data
11 portion of the program.

12 **Q.** Let's move to the Field ID data portion of the program at
13 that entry, at that location 01. Does the data there qualify
14 as a symbolic reference?

15 **A.** Well, here we have a two-part question. There are two
16 pieces of data. The yellow and the -- I guess magenta. So we
17 could -- we have to ask the question on each piece of data
18 individually.

19 I'll start with the 02. So going back to the claim
20 construction. "...a reference that identifies data..." So
21 this does identify data. That's the data that it identifies
22 (indicating). So that's okay.

23 "...by a name other than numeric memory location..."
24 Well, 02 is the location of that data. So it's not "other than
25 numeric memory location." It's actually the memory location.

1 So it's not a symbolic reference. Right there is not a
2 symbolic reference (indicating).

3 Q. What about the 76 that's in the Field ID table, the type
4 there?

5 A. This 76 also refers to data. So it is a -- it's a
6 reference. It refers to data, "a reference that identifies
7 data."

8 So let's see if it does so "by a name other than
9 numeric memory location." 76 is the location of the table of
10 the data to which it refers. So it actually is the numeric
11 memory location. So it's not "other than numeric memory
12 location," so it's not a symbolic reference.

13 Q. Let me back up for just a moment. The 01 in the
14 Instruction stream, to what extent is that ever referred to as
15 an index?

16 A. Yes. This is an index into the Field ID table. It tells
17 you the location of the entry within the Field ID table.

18 Q. We saw some documents that refer to "field@CCCC." Is that
19 an index?

20 A. That is an index and, in fact, this operand would be
21 described in those documents as "field@CCCC." The "@" is to
22 indicate that it's at a location within the Field table, CCCC
23 being the number 01.

24 Q. In that Field ID table the references you were just
25 discussing, 02 and 76, at the entry labeled 01. Are those

1 indexes?

2 **A.** Those are also indexes into a String ID table; the first
3 one being the index 02, the second one being the index 76.

4 **Q.** Thank you.

5 So now we're in the String ID table at location, the
6 entry two, and there is a piece of data there, correct?

7 **A.** Correct.

8 **Q.** Does that piece of data qualify or is that a symbolic
9 reference?

10 **A.** So we -- we know it's a reference. It's referring to some
11 more data. So it is "a reference that identifies data."

12 How does it do that? We can look at it and see that
13 08 is the location of the data. So it's not referring to the
14 data "by name other than numeric memory location." It's
15 referring to the data by its memory location, so it's not a
16 symbolic reference.

17 **Q.** What is that 08 called? Is it an index?

18 **A.** Well, in this case, in the String data table because the
19 entries are one byte, we say that this is the offset.

20 **Q.** What's the distinction between an "index" and an "offset"?

21 **A.** They are both locations. "Offset" may be used more
22 commonly when you want to talk about how many bytes into the
23 table you wish to traverse to find the location or refer to the
24 location.

25 "Index" might be used more commonly for table that

1 have larger-sized entries.

2 Q. Now, at entry 76 in the String ID table, there is a '104.
3 Is that a symbolic reference?

4 A. No. This is a numeric reference. It doesn't fit the
5 construction. It is "a reference that identifies data" --
6 specifically that data (indicating) -- but not "by a name other
7 than numeric memory location." It actually says that the
8 location is '104. You can find the data at '104.

9 Q. Now, let's move to the String data at entry 8. There is
10 the string "fun," correct?

11 A. That's correct.

12 Q. Is that string a symbolic reference under the Court's
13 claim construction?

14 A. Well, let's see. So fun is "a reference that identifies
15 data." The data is not shown on this board, but I know from
16 looking at the code that fun does refer to data somewhere with
17 the name "fun." So it is a reference.

18 Again, it identifies data "by a name other than the
19 numeric memory location." "Fun" is not a numeric memory
20 location. To find the numeric memory location for if fun, we
21 need to resolve. We need to go through some process that
22 returns the location that this symbol refers to. So it
23 satisfies both the first and the second parts. So we continue.

24 "The reference that identifies data by a name
25 other than the numeric memory location of the

1 data and that is resolved dynamically rather
2 than statically."

3 In Resolve.c, I know, again, from looking at the
4 code, that this is resolved dynamically rather than statically.
5 So it does qualify under the Court's instruction, claim
6 instruction as a symbolic reference.

7 **Q.** What about in the context of dexopt? Would that symbol
8 qualify as a symbolic reference under the Court's claim
9 construction?

10 **A.** Not if it's resolved statically. If it's resolved
11 statically, then it doesn't meet the last part, "resolved
12 dynamically reason statically."

13 Dexopt is a static linking process, so it operates on
14 the code statically rather than dynamically.

15 **Q.** Now, were you here for Dr. Mitchell's testimony?

16 **A.** Yes, I was.

17 **Q.** Did you hear him explain that the various different
18 references that were being used in Resolve.c and dexopt were
19 symbolic references rather than numeric references?

20 **A.** Yes. It's my understanding that Dr. Mitchell is saying
21 that this is a symbolic reference; that these are also all
22 symbolic references, rather than numeric memory locations.

23 **Q.** So how do you explain the difference in your opinion? I
24 believe you just said these are numeric references and --
25 excuse me -- Dr. Mitchell calls them symbolic references.

1 A. I believe Dr. Mitchell was applying the Court's claim
2 construction in a way other than what we've just done together,
3 the step that I'm applying here.

4 Q. Thank you, Dr. August. I think you can go back to the
5 stand.

6 (Witness resumes stand.)

7 Q. Let's talk about Resolve.c specifically. Did you review
8 the code for Resolve.c?

9 A. Yes, I did.

10 Q. And let's pull up the next slide, Slide 30.

11 (Document displayed)

12 Q. Did you review these functions in the Resolve.c code file?

13 A. Yes, I reviewed all of them.

14 Q. And what are these functions that we see on the left-hand
15 side of the screen that reads dvmResolveClass,
16 dvmResolveMethod?

17 A. These -- would you like me to read them all or just
18 describe generally what it is?

19 Q. Just describe generally to the jury what this is, what
20 these functions are.

21 A. Generally these are the methods -- the functions, rather,
22 that take numeric references from the instruction, goes through
23 the process we just went through generally, and along the way
24 may resolve a symbolic reference in the data, just like "fun"
25 over there.

1 Q. Did you review `dvmResolveClass`, `dvmResolveMethod`,
2 `dvmResolveInterfaceMethod`, `dvmResolveInstField`,
3 `dvmResolveStaticField` and `dvmResolveString` in arriving at your
4 opinions?

5 A. Yes, I did.

6 Q. And are you aware that Dr. Mitchell accuses these
7 functions in `Resolve.c` of infringing the '104 patent?

8 A. Yes.

9 Q. Do you agree with Dr. Mitchell?

10 A. No, I don't.

11 Q. Why not?

12 A. They operate on -- generally, they operate on
13 instructions that do not contain symbolic references. And the
14 way that you can tell by look at the functions is the argument.
15 This argument is another word for operand. So that would be
16 the 01 in the instruction.

17 In each case we see that the functions are taking an
18 index from the instruction. Each of those indexes are numeric
19 references, not symbolic references.

20 Q. Just so the jury is clear, where are the indexes that are
21 the arguments into those functions for `Resolve.c` on this board?

22 A. It would be the 01 in the instruction 52 01.

23 Q. In the Instruction stream?

24 A. Yes. This would be the "@CCCC" in the instructions.

25 Q. Thank you.

1 Now, I'd like to show you an exhibit that the jury
2 has seen before.

3 **MR. KAMBER:** May I approach, your Honor?

4 **THE COURT:** You may.

5 (Whereupon, document was tendered
6 to the witness.)

7 **BY MR. KAMBER:**

8 **Q.** This is Trial Exhibit 737.

9 (Document displayed)

10 **Q.** This is a document entitled "Dalvik VM Instruction
11 Formats." Are you familiar with this document?

12 **A.** Yeah. This is included with the code, the Android code,
13 this document.

14 **Q.** I would like to -- and it says at the beginning:

15 "This document lists the instruction formats
16 used by Dalvik bytecode and is meant to be
17 used in conjunction with the bytecode
18 reference document."

19 Correct?

20 **A.** Yes, I see that.

21 **Q.** I would like to draw your attention to the second page.
22 There's a section entitled "Syntax."

23 Does this document tell you anything about the --
24 what composes an instruction in Dalvik bytecode?

25 **A.** Yes. So syntax, this is referring to the syntax or what

1 makes up an instruction.

2 Q. Where do we see that, Dr. August?

3 A. It says:

4 "Each instruction starts with the named
5 OpCode and is optionally followed by one or
6 more arguments themselves separated with
7 commas."

8 Q. Is that in this first paragraph?

9 A. That's right. The second sentence.

10 Q. Thank you.

11 (Document highlighted)

12 Q. And what does that mean to you?

13 A. It's describing instructions, as I understand
14 instructions.

15 Q. So there are OpCodes and operands, is that correct?

16 A. That's right. Just like the instructions in the board.

17 Q. Are "operands" also referred to as "arguments" here?

18 A. Yes. Those terms are used interchangeably.

19 Q. Let's talk about the Paragraph 2 from the bottom here. It
20 starts:

21 "Arguments which indicate a literal constant
22 pool index have the form "kind@x."
23 Do you see that?

24 A. Yes, I do.

25 Q. What is this paragraph generally talking about,

1 Dr. August?

2 **A.** It's talking about the arguments in a certain set of
3 instructions, the arguments being indexes into certain constant
4 pools, and those arguments are indexes numeric memory
5 locations.

6 **Q.** What types of indexes are there as arguments in Dalvik
7 bytecode?

8 **A.** Well, here it lists four kinds: String pool index, Type
9 pool index, Field pool index, and Method pool index.

10 **Q.** Those are the arguments we were just discussing with
11 respect to the inputs to the functionality in Resolve.c, is
12 that correct?

13 **A.** That's correct.

14 **Q.** Now, let's turn to the third page briefly. There is "The
15 Formats" at the top. Do you see that Dr. August?

16 **A.** I do.

17 **Q.** About halfway down the page there is an OpCode format
18 "B|A|Op CCCC," and then an OpCode for 22c.

19 What does this show regarding the format that the
20 OpCodes and instructions in the operands in the instruction
21 stream take in Dalvik bytecode?

22 **A.** There are a limited number of shapes that the instructions
23 can take, and one of those shapes or formats is what's numbered
24 or named the 22c format. And as we see, that format includes
25 Op, which is the OpCode, the action to be performed, and three

1 arguments or operands, vA, vB, types at CCCC, or there is a
2 variant here, which is "field@CCCC." Because that last
3 argument is an index either way, it conforms to the same 22c
4 format or shape.

5 Q. To what extent --

6 MR. KAMBER: You can take it that down. Thank you.

7 BY MR. KAMBER:

8 Q. To what extent have you seen comments in the code
9 referring to symbolic references in resolution in Dalvik?

10 A. It's in numerous locations within the code. References to
11 resolution, yes.

12 Q. Do those comments suggest to you that the '104 patent may
13 be infringed by Dalvik?

14 A. No, it does not.

15 Q. Why not?

16 A. Because resolution does not occur on symbolic references
17 contained in the instructions. It occurs on symbolic
18 references contained in the data.

19 Q. Did you see Dr. Mitchell's slides regarding these
20 comments?

21 A. I did.

22 MR. KAMBER: Let's pull up one of them. I believe
23 it's Dr. Mitchell's version three, Slide 19, please.

24 (Document displayed)

25

1 **BY MR. KAMBER:**

2 **Q.** Now, Dr. Mitchell presented this slide in his testimony,
3 correct?

4 **A.** Yes.

5 **Q.** And do these comments in the code suggest anything to you
6 about whether the '104 patent is infringed?

7 **A.** It doesn't say that symbolic references in instructions,
8 contained in instructions are resolved. It merely talks about
9 resolution being symbolic references, converted into pointers;
10 just resolution that we see elsewhere, for example, in the data
11 section.

12 **Q.** In your opinion, is there resolution occurring on symbolic
13 references in Dalvik?

14 **A.** Yes. There is resolution. There is symbolic references.
15 Symbolic references need to be resolved, absolutely.

16 **Q.** Are there symbolic references ever in instructions?

17 **A.** No. I have looked at all the instruction formats. I have
18 looked at all the implementation of the instructions and I can
19 say with certainty that the instructions do not contain
20 symbolic references.

21 **Q.** Let's take a look at another slide that Dr. Mitchell
22 presented.

23 **MR. KAMBER:** Slide 21, please.

24 (Document displayed)

25

1 BY MR. KAMBER:

2 Q. And here there is some commentaries. This is from the
3 file Resolve.c. I believe its TX 47.6. It starts at line 18:

4 "Resolve classes, methods, fields, and
5 strings."

6 Do you see that?

7 A. Yes, I do.

8 Q. Are those the arguments that we were just talking about
9 that are inputs into are the Resolve.c functions that are
10 accused of infringing?

11 A. No. The arguments that we were looking at are the indexes
12 into tables. So in the example on the board, resolving the
13 field in this case, because this is field resolution, would be
14 the resolving of fun. So that's referring to the resolution of
15 fun in the String data pool.

16 Q. Does this commentary in the code suggest to you that there
17 are symbolic references in the instructions in Dalvik bytecode?

18 A. No, it doesn't suggest that.

19 Q. Now, let's -- if you have your claim charts still, let's
20 take a look at Claim 11 on the claim chart. We'll pull up a
21 version here as well.

22 (Document displayed)

23 Q. Dr. August, what is your opinion regarding whether or not
24 Resolve.c infringes Claim 11 of the '104 patent?

25 A. It is my opinion that Resolve.c does not infringe Claim 11

1 of the '104 patent.

2 Q. Why not?

3 A. Claim 11 requires that instructions contain symbolic
4 references. Dalvik and Android instructions do not contain
5 symbolic references.

6 Q. So that first part of that limitation that's underlined in
7 red in Claim 11, you think that that -- it's your opinion that
8 that's not met, is that correct?

9 A. That's correct. That's what I'm saying.

10 Q. And does that impact these other underlined claim
11 elements?

12 A. Yes. You see down below:

13 "...said instructions containing one or more
14 symbolic references."

15 The instructions don't contain symbolic references as
16 we've seen.

17 Q. Let's move on to Claim 39, slightly different format, but
18 generally the same idea.

19 A. Correct. That's correct.

20 Q. What's your opinion as to whether Claim 39 is infringed by
21 the Resolve.c functionality in Dalvik?

22 A. It's my opinion that Claim 39 is not infringed by
23 Resolve.c functionality.

24 Q. Why not?

25 A. For a very similar reason. The claim requires a symbolic

1 field reference contained in the instruction. So there's a
2 little more to the first part.

3 "Each instruction to determine whether it
4 contains a symbolic field reference."

5 And down below it says:

6 "...operation when the instruction contains a
7 symbolic field reference."

8 Symbolic field reference is a type of symbolic
9 reference. It's actually the type we went through on the
10 board. Android doesn't contain symbolic references of any
11 kind, let alone symbolic field references. So there is no
12 infringement.

13 **Q.** Let's move on to Claim 40, and I think we can do these a
14 little faster.

15 With respect to Claim 40, what is injury opinion
16 regarding whether Resolve.c functionality infringes this claim?

17 **A.** My opinion is that the Resolve.c functionality does not
18 infringe Claim 40 of the '104 patent for the same reason as
19 claim -- reasons as Claim 39.

20 **Q.** Finally, Claim 41 of the '104 patent. What is your
21 opinion regarding whether this claim is infringed by the
22 Resolve.c functionality in Dalvik?

23 **A.** It's my opinion that the Resolve.c functionality in Dalvik
24 does not infringe Claim 41. Again, because the instructions do
25 not contain symbolic references.

1 Q. So let's change gears a little bit and talk about dexopt.

2 Dexopt is the other infringement theory that

3 Dr. Mitchell provided in the courtroom, correct?

4 A. I remember that.

5 Q. Now, do you believe that the dexopt functionality in

6 Android infringes the '104 patent?

7 A. No, I don't.

8 Q. Specifically, do you believe that it infringes Claims 27

9 and 29 that are asserted against dexopt?

10 A. It's my opinion that dexopt does not infringe Claims 27

11 and 29 of the '104 patent.

12 Q. Why is that your opinion?

13 A. Well, there are two reasons. The first reason is the same

14 reason that we have been discussing. The instructions don't

15 contain symbolic references. Those claims require that those

16 instructions contain symbolic references, so that's not met.

17 Q. So let's talk about that for a moment. Does the

18 documentation related to dexopt suggest to you that the -- that

19 there are no symbolic references in the instructions upon which

20 dexopt operates?

21 A. Yeah. It makes that suggestion.

22 MR. KAMBER: Let's pull up Slide 44 from Dr.

23 Mitchell's presentation.

24 (Document displayed)

25

1 BY MR. KAMBER:

2 Q. This is related to dexopt, correct?

3 A. Yes.

4 Q. And at the top it notes:

5 "Rewrite an IGET/IPUT instruction. These all

6 have the form: Op, vA vB, field@CCCC."

7 Do you see that?

8 A. Yes. This looks like the format 22c that we were looking
9 at in the prior document.

10 Q. To what extent does dexopt relate to the functionality of
11 rewriting an IGET/IPUT instruction?

12 A. Dexopt is going to take instructions of this format and
13 rewrite them as another instruction that has a similar format,
14 but is slightly different. Dexopt is the process that makes
15 that rewriting.

16 Q. And here there is a reference to -- I believe this
17 highlighting was on Dr. Mitchell's slide -- to:

18 "CCCC is the field reference constant pool

19 offset."

20 Do you see that?

21 A. Yes.

22 Q. What is that referring to?

23 A. That's referring to the CCCC in the, on Line 622. It's
24 saying that CCCC in that op -- that instruction format is a
25 constant pool offset, a location.

1 Q. Where is that "field@CCCC" on Mr. McFadden's
2 demonstrative?

3 A. It's under the Field ID. So CCCC would come from the
4 instruction and point to an entry in the Field ID table.

5 Q. Now, this documentation, this source code commentary
6 continues on.

7 "For a non-volatile field we want to replace
8 the OpCode with quick Opc and replace CCCC
9 with the byte offset from the start of the
10 object."

11 Do you see that?

12 A. I do.

13 Q. Can you decipher that for the jury please?

14 A. This is saying it's taking an instruction that looks just
15 like we went through on the board, replacing it with a similar
16 instruction, with an operand that's not a reference to the
17 Field ID table, but a -- which is a location. It's replacing
18 it with another location that is a location into -- or an
19 offset into an object.

20 Q. Now, let's look at Slide 48 from Dr. Mitchell's
21 presentation. This is from TX 47.13's.

22 (Document displayed)

23 Q. At the top here we see a line 5966, ".L_OP IGET_QUICK."

24 A. Yes.

25 Q. What is this?

1 A. This is a code that is executed when the IGET_quick
2 instruction is encountered in the instruction stream.

3 Q. Here there is a reference on line 5969 it says, "Op vA,
4 vB, offset@CCCC."

5 Do you see that?

6 A. Yes.

7 Q. What is that referring to?

8 A. That was the offset into the object that I was just
9 describing. This is the -- this is the instruction that's
10 produced by the rewriting process in dexopt.

11 "Offset@CCCC" is a location. Again, the "@" sign is
12 a good reminder that we're talking about locations, numeric
13 memory locations. This is the offset into the object.

14 Q. So with respect to this dexopt functionality known as
15 quickening bytecodes, how does this instruction start and how
16 does it end?

17 A. Can you repeat the question?

18 Q. Sure. Let me try to rephrase it.

19 With respect to the argument that goes into these
20 OpCodes, how are the arguments changing, if at all, in the
21 process, in the dexopt process of rewriting the operand?

22 A. The dexopt process will go through the instructions. When
23 it finds an IGET instruction or it wants to quicken the IGET,
24 it will take the -- in this case the 01, 52 01, the 01, a
25 numeric memory location, go through the process that we went

1 through on the board, do resolution when it gets to that "fun."

2 The result of that resolution is an offset. It will
3 take that offset, write it into the instruction at the same
4 location as the index that got us to the Field ID table, and
5 change the instruction from an IGET to an IGET_quick.

6 So it's converting an instruction with an index to an
7 instruction with an offset, both memory locations.

8 **Q.** When you say it's converting the OpCode, what exactly on
9 this diagram is it rewriting?

10 **A.** So it would change the 52, the OpCode, from -- 52 means
11 IGET. It would replace that with another number, which I could
12 look up for you, but it's another number, a larger number.
13 Generally that means IGET_quick so that the virtual machine
14 understands that it has to interpret the operand slightly
15 differently.

16 **Q.** Is it rewriting the argument, the "field@CCCC" from the
17 original instruction set?

18 **A.** Yes. It also rewrites that.

19 **Q.** What does it rewrite it to?

20 **A.** It takes that index into the Field ID table, and numeric
21 memory location, and replaces it with an offset into the object
22 that the IGET_quick is going to operate on. And that offset,
23 also a location, is placed inside the instruction, replacing
24 the index. An offset replaces the index.

25 **Q.** We were just looking before at TX 737.

1 (Document displayed)

2 Q. Can you pull that out again please, Dr. August?

3 (Witness complied.)

4 Q. Does this documentation regarding the format of the Dalvik
5 VM instructions refer to this quickened bytecode format?

6 A. Yes. The -- I'm on a different page, sorry. Where are
7 you referring to?

8 Q. Page three specifically.

9 A. Okay. That's where I was.

10 Q. In the middle of the page we were looking at that OpCode
11 22c before?

12 A. That's right.

13 Q. And there is an OpCode below that marked 22cs. Do you see
14 that?

15 A. Yes.

16 Q. Does this relate at all to the dexopt functionality in
17 Dalvik?

18 A. Yes. This is the process, the rewriting process that I
19 was describing earlier. The 22c is read by dexopt, that
20 instruction, with a -- in this case the "field@CCCC" is "01."
21 Dexopt goes through a process, produces a field offset, and
22 will rewrite that 52 01 instruction into a format 22cs
23 instruction, which instead of containing a "field@CCCC" numeric
24 memory location has a "fieldoff@CCCC" numeric memory location.
25 In both cases there are no symbolic references in the

1 instruction.

2 Q. Let's take a look at something similar, Trial Exhibit
3 46.106. Do you have that that in front you, Dr. August?

4 A. Yes.

5 (Document displayed)

6 Q. This is a file noted at the top "Dalvik lib
7 dex/instutils.h." Do you see that?

8 A. Yes.

9 Q. What is the purpose of the file in the source code?

10 A. This is actual source code enumerating the instruction
11 formats of the instructions. So if you wanted to understand
12 all the possible formats of instructions in the Dalvik Virtual
13 Machine, you could go here as a starting point.

14 Q. Now, on line 27 there is a reference to:

15 "Dalvik-defined instruction formats."

16 Do you see that?

17 A. Yes.

18 Q. And further down does this document contain the different
19 formats for the Dalvik instructions?

20 A. Yeah. So the formats start with Line 41, and it continues
21 onto the next page, to about 72. The formats we were just
22 talking about are Lines 57 and 58.

23 Q. Let's take a look at those very briefly. Line 57 refers
24 to "Kfmt22c" and then has some comments on the right-hand side.
25 Do you see that?

1 A. That's right. Everything after the slash slash is a
2 comment. It's not executed.

3 Q. Now, that "Op vA, vB thing@CCCC" what does that refer to?

4 A. That's an index into a constant pool table. Could be as
5 in the case of the board, "field@CCCC." It's just a
6 placeholder for whatever that thing happens to be.

7 Q. And then there is that format directed below it on Line
8 58, "Kfmt22cs." And what do the comments say about that
9 bytecode format?

10 A. Here it's written a little bit differently. Rather than
11 "fieldoffset@CCCC," the programmer put some spaces in there,
12 but this is the field offset that I was talking about earlier,
13 the offset into the object that is used in the rewritten
14 instruction, the IGET_quick, for example.

15 Q. So just to summarize, what do these documents relating to
16 dexopt suggest to you, if anything, regarding whether or not
17 the instructions in Dalvik bytecode contain symbolic
18 references?

19 A. Line 57 suggests that the instruction contains an index, a
20 numeric memory location, not a symbolic reference.

21 Line 58 suggests that the instruction formats format
22 at 22cs contain a field offset, CCCC; a numeric location not a
23 symbolic reference.

24 Q. You mentioned at the beginning of the discussion of dexopt
25 that there were two reasons why it's your opinion that dexopt

1 doesn't infringe. What is the second reason?

2 **A.** The claim construction requires that resolution occurred
3 dynamically rather than statically, and dexopt is not a dynamic
4 process.

5 **Q.** Pardon me, Dr. August. I just want to pull up the claim
6 construction very briefly. I believe it's Slide 29 from your
7 slide deck.

8 **MR. JACOBS:** Your Honor, can I have a standing
9 objection in light of what we discussed earlier to this line of
10 questioning?

11 **THE COURT:** All right. Sustain the objection.

12 **BY MR. KAMBER:**

13 **Q.** So let's look at this claim construction. I believe you
14 mentioned something about that dexopt is static rather than
15 dynamic; is that correct?

16 **A.** That's right.

17 **Q.** Now, why do you characterize dexopt as being -- doing
18 resolution statically rather than dynamically?

19 **A.** Dexopt is doing static linking. Dexopt runs and must run
20 before the program executes. So that's static.

21 **Q.** You just used the term "linking." We've been talking a
22 lot about resolution.

23 Can you explain whether there is any connection
24 between linking and resolution?

25 **A.** Yes. As we saw last time -- we didn't go through it

1 today, but when we got to the "fun" in the string data we had
2 to do some resolution.

3 The resolution process that we did last time involved
4 doing a search to find a corresponding "fun." So we needed to
5 link "fun," as it's referenced here, with "fun" where the
6 location of that field is defined. So we need to resolve or
7 link. So resolution -- or linking is one form of resolution.

8 **Q.** Now, did you -- in forming your opinion on this, did you
9 consider Mr. Bornstein's characterization of dexopt?

10 **A.** Yes, I did.

11 **Q.** And did you consider -- let's pull up -- there's TX 32,
12 and particularly slide 35 of that document. And this slide
13 refers to "install-time work."

14 Do you see that, Dr. August?

15 **A.** Yes, I do.

16 **Q.** And then it refers to static linking; do you see that?

17 **A.** Yes.

18 **Q.** Does this inform your opinion regarding whether or not
19 dexopt does resolution statically versus dynamically?

20 **A.** It's consistent with my examination of the code.

21 Static linking is the kind of resolution that's
22 happening in dexopt. Dexopt occurs before the program
23 executes. Dexopt is -- the dexopt process does install-time
24 work. When the -- as we talked about last time, when the
25 application arrives on the phone, dexopt operates on that

1 application, performing static linking, doing the -- the
2 resolution.

3 Q. Are you familiar with the video where Mr. Bornstein is
4 presenting this particular slide regarding dexopt?

5 A. Yes.

6 Q. And what does Mr. Bornstein say in that video regarding
7 whether or not this is -- there is a static operation for
8 resolving symbolic references?

9 A. I believe he says that -- talks about it as a static
10 linking process, and that this is install-time work.

11 Q. Now, let's move away from the slides for a moment and talk
12 about the documentation. Let's take a look at TX 735, that I
13 believe you have up on the stand with you, as well. And let's
14 start -- this is a document titled, "Bytecode for the Dalvik
15 VM," correct?

16 A. That's correct.

17 Q. Are you familiar with this document?

18 A. Yes.

19 Q. Now, towards the bottom of the first page there's a
20 reference. It says:

21 "When installed on a running system, some
22 instructions may be altered, changing their
23 format, as an install-time static linking
24 optimization."

25 Do you see that?

1 A. I do.

2 Q. How, if at all, does this inform your opinion regarding
3 dexopt and when it runs?

4 A. Again, this is consistent with my understanding and
5 examination of the code.

6 Dexopt occurs at install time, when the application
7 is installed. The application is installed before it is
8 executed. Before it is executed.

9 Q. To what extent is this consistent with your opinion that
10 it's a static optimization?

11 A. Well, it's install time. It's a static linking
12 optimization.

13 Q. Now, let's turn to page 6, Dr. August. There's a
14 reference here. It's talking about bytecode format 22c,
15 instance ops. And on the right-hand side there's a note. It
16 says:

17 "These opcodes are reasonable candidates for
18 static linking, altering the field argument
19 to be a more direct offset."

20 Do you see that?

21 A. Yeah.

22 Q. Is that what we were just talking about with respect to
23 dexopt and the type of functionality that it has?

24 A. Yeah. Dexopt is taking advantage of these reasonable
25 candidates for static linking and performing the static linking

1 on those instructions.

2 **Q.** Let's go back to TX 737, that we've been looking at. This
3 is a document, again, related to the Dalvik VM instruction
4 formats. And on the first page, towards the bottom, it says:

5 "Suggested static linking formats have an
6 additional 's' suffix."

7 Do you see that?

8 **A.** I do.

9 **Q.** And let's turn back to page 3, and those bytecode formats
10 we were just looking at. It says "22cs." Do you see that on
11 page 3?

12 **A.** I do.

13 **MR. KAMBER:** Let's pull that up on the screen so the
14 jury can see it, as well.

15 (Document displayed.)

16 **BY MR. KAMBER:**

17 **Q.** So we were looking at the instruction sequence 22c before,
18 and there's also a reference here to "22cs." Do you see that?

19 **A.** Yeah.

20 **Q.** Based on this documentation, do you understand this to be
21 relating to the static linking format?

22 **A.** Yeah. So the 22c instruction, having gone through the
23 static linking process, is converted to a 22cs. The "s"
24 indicates there has been a static linking applied. The 22c
25 becomes a 22cs. Statically.

1 Q. Thank you, Dr. August.

2 On the right-hand side there's a comment here. Says:

3 "Suggested format for statically linked field

4 access instructions of format 22c."

5 Do you see that?

6 A. I do.

7 Q. What does that tell you?

8 A. That's dex- -- dexopt is taking advantage of this

9 suggestion. It's performing the static linking.

10 Q. Let's talk about the documentation specifically for
11 dexopt. That's TX 739. Starts, "Dalvik optimization and
12 verification with dexopt."

13 Do you see that?

14 A. Yes.

15 Q. Are you familiar with this document?

16 A. Yeah. It's in the code.

17 Q. Now, there's -- on the first page, towards the bottom,
18 there's a reference in the bullet point, last bullet point on
19 the page:

20 "Optimizations that require rewriting

21 bytecode must be done ahead of time."

22 Do you see that?

23 A. Yes.

24 Q. What is that referring to?

25 A. For a variety of technical reasons, the virtual machine is

1 unhappy or would not work properly if instructions are modified
2 during execution.

3 So the optimizations that change the instructions
4 have to occur before the program is executed, before it is
5 dynamically executed.

6 **Q.** On the bottom of page 3, continuing on to page 4, there's
7 a section titled "Optimization."

8 There's been some discussion about this particular
9 paragraph with various witnesses. It refers, generally, to
10 some optimizations, correct?

11 **A.** Yes.

12 **Q.** And it ends:

13 "Some of these require information only
14 available at runtime. Others can be inferred
15 statically when certain assumptions are
16 made."

17 Do you see that?

18 **A.** Yes, I do.

19 **Q.** And it continues on:

20 "The Dalvik optimizer does the following."

21 Do you see that?

22 **A.** Yes.

23 **Q.** Does the Dalvik optimizer do optimizations that require
24 information only available at runtime, or does it do the
25 optimizations that can be inferred statically when certain

1 assumptions are made?

2 **A.** No, it only does the -- those that can be entered
3 statically when certain assumptions are made.

4 This is just a little background information about
5 the design philosophy of dexopt. The choice was made not to do
6 optimizations that require information available only at
7 runtime, for a variety of reasons.

8 So this is to suggest that the dexopt only operates
9 on the code with inferred -- with information inferred
10 statically.

11 **Q.** So let's pull out the claim charts again. And we'll look
12 at Claims 27 and 29 now. Those are the claims that are accused
13 of infringing the -- for which dexopt is accused of infringing
14 the '104 Patent, correct?

15 **A.** That's correct.

16 **Q.** So we have it here on the screen, as well, Claim 27.

17 What is your opinion as to whether dexopt infringes
18 Claim 27 of the '104 Patent?

19 **A.** It's my opinion that dexopt does not infringe Claim 27 of
20 the '104 Patent, for two reasons.

21 **Q.** What are the two reasons?

22 **A.** The first reason is that the -- as we've talked about, the
23 instructions do not contain symbolic references. The second
24 reason is that the resolution is not occurring dynamically. So
25 it doesn't meet the Court's claim construction of a symbolic

1 reference anywhere.

2 **Q.** Now let's take a look at Claim 29.

3 What is your opinion as to whether dexopt infringes
4 Claim 29 of the '104 Patent?

5 **A.** It's my opinion that dexopt does not infringe Claim 29 of
6 the '104 Patent for the same two reasons.

7 **Q.** So we're in the home stretch. I just want to cover two
8 things, briefly, Dr. August.

9 The '104 Patent is a reissue patent, correct?

10 **A.** That's my understanding.

11 **Q.** Okay. And perhaps we can pull up TX 4015. This TX 4015
12 is the '104 Patent, correct?

13 **A.** Yes.

14 **Q.** And on the front of the patent it refers to -- let me see
15 if I can find it here. Down a little bit. Here it is. Thank
16 you.

17 It's the reissue of Patent No. 5,367,685, correct?

18 **A.** That's correct.

19 **Q.** Are the original claims of the '685 reflected in the '104
20 Patent?

21 **MR. JACOBS:** Your Honor, objection. Report.

22 **THE COURT:** Is this in the report?

23 **MR. KAMBER:** Your Honor -- well, it is not in the
24 report, but I would ask for a sidebar because I can explain why
25 we're trying to use this.

1 **THE COURT:** I understand why you're trying to use it.
2 If it's not in the report, I don't see how you can do that.

3 **MR. KAMBER:** Well, the allegations regarding
4 Mr. Lindholm and the '685 Patent didn't surface until this
5 trial, and we would like the witness to be able to respond to
6 the issue about the '685 Patent and how it differs or is the
7 same as the '104 Patent.

8 **THE COURT:** Is '685 in evidence?

9 **MR. KAMBER:** The '685 is in evidence. It is. It's
10 been stipulated.

11 **THE COURT:** In the closing argument just show the
12 jury the claims under '685, and compare them to the claims
13 under '104.

14 But that's the most this witness could do anyway,
15 correct? If it's not in the report, you can't go into it.

16 **BY MR. KAMBER:**

17 **Q.** Let's finish by talking about the report from
18 Mr. Vandette. Are you familiar with that report?

19 **A.** Yes, I am.

20 **Q.** Now, are you familiar with performance benchmarking,
21 generally?

22 **A.** Yeah, I do quite a bit of it in my course of work.

23 **Q.** Now, can you draw any conclusions from the benchmarking
24 that Mr. Vandette did regarding the impact of this accused
25 functionality Resolve.c and dexopt on the performance of

1 Android, generally?

2 **A.** I think there are three issues with those results, if
3 you're trying to understand the impact on Android generally.

4 The first issue is that the measurements were
5 performed on the virtual machine. The virtual machine is not
6 always running. So -- but the reports were -- the results were
7 reported as if that virtual machine was always running. So the
8 results are overstated.

9 **Q.** Can I just pause you there for a moment. What do you mean
10 by the virtual machine isn't always running?

11 **A.** Well, there are other ways to execute applications:
12 Native code. The just-in-time compiler, which compiles the
13 bytecode instructions to native code. And during those
14 operations, the virtual machine's performance is not an issue.

15 **Q.** Now, you mentioned there were three reasons, and I cut you
16 off.

17 What are the other two reasons that you think that
18 the benchmarking regarding the impact of this functionality
19 isn't indicative of a real-world impact on Android?

20 **A.** Benchmarks used are not the same as the applications that
21 users use.

22 If you have access to the applications that users
23 use, and you want to understand the impact that the
24 optimizations have on the user, use the applications. The
25 benchmarks are, at best, an approximation of that.

1 Q. What's the third reason that you take issue with
2 Mr. Vandette's analysis?

3 A. Mr. Van Nest deactivated part of Android that's not
4 accused here.

5 Q. Which part?

6 A. The just-in-time compiler. This is an issue because the
7 just-in-time compiler compensates for limitations or
8 inefficiencies in the virtual machine.

9 So if we're talking about optimizations, generally
10 about -- on the virtual machine, I don't think it's fair to
11 turn off a component of Android that compensates for
12 inefficiencies in the virtual machine and then report those
13 results.

14 Q. Is the just-in-time compiler accused of infringing the
15 '104 Patent?

16 A. No, it's not.

17 Q. And can you just briefly explain to the jury, what does a
18 just-in-time compiler do?

19 A. The just-in-time compiler observes the instructions as
20 they're being, at least initially, executed by the virtual
21 machine.

22 If it sees that some instructions are executed
23 frequently, it will stop the virtual machine, grab those
24 instructions, and convert them to native code so that they can
25 run without the virtual machine.

1 So this is one of the ways in which the virtual
2 machine is turned off so that code can execute natively more
3 efficiently. Native code is almost always faster than
4 interpreted code.

5 **Q.** What would be the impact, if any, of turning off the
6 just-in-time compiler in order to do the benchmarking test that
7 Mr. Vandette did regarding the Resolve.c and dexopt
8 functionality?

9 **A.** Well, the just-in-time compiler can give you significant
10 performance improvements. And those performance improvements
11 are taken away if you turn off the just-in-time compiler.

12 **MR. KAMBER:** Thank you, Dr. August.

13 Pass the witness, Your Honor.

14 **THE COURT:** All right. We'll start on the
15 cross-exam, and then take a break in about 15 minutes.

16 **CROSS EXAMINATION**

17 **BY MR. JACOBS:**

18 **Q.** Good morning, Dr. August.

19 **A.** Good morning.

20 **Q.** Want to be sure we have exactly what your testimony is on
21 one of those central issues.

22 Dr. August, what is the meaning of "52 01"?

23 **A.** So the 52 is the opcode. That's the type of the action
24 that that instruction is performing. And the 01 is a
25 modification on that action.

1 Q. And that opcode is what, sir?

2 A. That's an IGET.

3 Q. And what is the meaning of IGET 01?

4 A. IGET 01 means to take the index in the instruction, find
5 the field ID entry, the string ID table entry, the symbolic
6 reference, resolve the symbolic reference to an offset, take
7 that offset, apply it to an instance object, look in the
8 instance object, get a piece of information, and place that
9 information in another location, called the register.

10 Q. You didn't show that instance object on your chart; did
11 you, Dr. August?

12 A. It wasn't on that chart.

13 Q. We changed "fun" to "y," at the request of the judge, but
14 you'll --

15 A. "Y" is very wise.

16 Q. That doesn't change anything in the analysis, does it;
17 correct, sir?

18 A. No, it does not.

19 Q. Let's unpack what you just said. 52 is IGET?

20 A. That's the opcode, yes.

21 Q. And 01, there's -- over here there's a field object,
22 right, sir, diagrammatically (indicating)?

23 A. Well, there's an instance object.

24 Q. An instance object. Okay.

25 A. Actually --

1 Q. What IGET 01 does is recover the value of a field from the
2 instance object; correct, sir?

3 A. The -- going through the process I described, it goes to
4 the field ID table, the string ID table, string data, resolves
5 the reference, then uses the result of that resolution, which
6 is just an offset --

7 Q. Finish your answer. Sorry.

8 A. That offset is then used to go into the instance object.
9 This, of course, is only possible in the Resolve.c
10 functionality because the instance object doesn't exist during
11 dexopt time.

12 Q. So, again, in a nutshell, sir, the meaning of 52 01, IGET
13 01, is to obtain the value of a field from the instance object
14 and place it in a register; true, sir?

15 A. That's the --

16 Q. I'm not talking about the process. I'm talking about
17 ultimate meaning.

18 A. That's the last step of the process.

19 MR. KAMBER: Object, Your Honor. Vague, "meaning."

20 THE WITNESS: That's the last step in the process,
21 yes.

22 BY MR. JACOBS:

23 Q. What should I draw in here to illustrate the instance
24 object?

25 A. You could put some entries in the instance object, and you

1 could label those entries with locations, offsets.

2 Q. Does 01 uniquely represent the value of a field in the
3 instance object?

4 A. No, it doesn't.

5 Q. So 01 could get you randomly to fields in the instance
6 object?

7 A. I didn't suggest that it got you there randomly. But if
8 you have a second dexopt file that's referring to the same
9 instance object, it may be that the IGET instruction is 52 08.
10 So you can't use the operand in the instruction as a
11 representation because there's no matching that can happen, no
12 resolution.

13 Q. Does 52 01 get you to a value -- a specific value in the
14 instance object?

15 A. In the context of the data, it does. The data gives
16 meaning to or at least the -- allows you to follow a path to
17 get you to the -- to the appropriate offset in the instance
18 object.

19 Q. Does the 01 represent the -- does 01 actually contain the
20 offset in the instance object?

21 A. 01 is not the offset into the instance object.

22 Q. Now, just to clean up a few other things. You labeled
23 this "data," but this is actually the constant pool; true, sir?

24 A. Constant pool is data.

25 Q. But it's the constant pool; true, sir?

1 A. Yes.

2 Q. And the data that the IGET instruction is interested in
3 obtaining, the purpose of the IGET instruction is to obtain
4 data from an instance object; true, sir?

5 A. Yes, as the last step.

6 Q. And, again, the 01 is not a numerical value in the
7 instance object of the data; is it, sir?

8 A. No. It's a location in the field ID table, an index.

9 Q. And it specifies a value of a field in the instance
10 object; true, sir?

11 A. It gives you the first step in a seven- or eight-step
12 process that will allow you to find that offset.

13 Q. It specifies the value of the field in the instance object
14 that the IGET instruction is seeking to obtain; true, sir?

15 A. I don't know what you mean by "specifies."

16 Q. Okay. Well, let's see what -- I think we've taken that to
17 a helpful point.

18 You were here when Dr. Mitchell testified?

19 A. Yes.

20 Q. You were here when Dan Bornstein testified?

21 A. Yes.

22 Q. And he was the technical lead for Dalvik; in fact, the
23 person who had the idea for Dalvik?

24 A. Yes.

25 Q. And when Mr. Bornstein was testifying, you didn't detect

1 any inaccuracies in his testimony?

2 **A.** I don't recall any at the moment.

3 **Q.** And the same with Andy McFadden, you heard him testify;
4 true, sir?

5 **A.** Yes.

6 **Q.** You didn't detect -- true or false, you detected no
7 inaccuracies in his testimony?

8 **A.** True.

9 **Q.** You're familiar with the '104 Patent. You've studied it
10 at length.

11 **A.** Yes.

12 **MR. JACOBS:** Let's look at Figure 1A of the '104
13 Patent, please, Exhibit 4015.

14 (Document displayed.)

15 **BY MR. JACOBS:**

16 **Q.** Now, what's illustrated here is a load operation?

17 **A.** That's correct.

18 **Q.** And the operand of the load op- -- of the load instruction
19 is "2"?

20 **A.** I see that.

21 **Q.** "2" is not the data being obtained; true, sir?

22 **A.** That's true.

23 **Q.** The "2" in "load 2" is a numeric memory location; true,
24 sir?

25 **A.** That is true.

1 Q. So in Figure 1A, the data that is being obtained by the
2 load instruction is the actual data in the data object; true,
3 sir?

4 A. True.

5 Q. And that data is the value 17; true, sir?

6 A. Yes.

7 Q. So if we look at 1A, we look at -- we have an object in
8 there called a "data object." And the value that's being
9 recovered is the value 17; true, sir?

10 A. That's true.

11 Q. Now let's look at Figure 1B. Here's another load
12 instruction; true, sir?

13 A. Yes.

14 Q. And the operand of this load instruction is "y"; true,
15 sir?

16 A. That's correct.

17 Q. The "y" in "load y" is a symbolic reference?

18 A. That's correct.

19 Q. "y" is not the actual data being obtained by the load
20 instruction?

21 A. "y" is a reference followed to get the data being loaded.

22 Q. The actual --

23 A. Resolved.

24 Q. Sorry.

25 A. It's the symbol that needs resolution to get you to slot

1 2.

2 Q. The actual data to be obtained by the load instruction is
3 the value "17," true?

4 A. The data loaded will be "17," yes.

5 Q. The actual data to be obtained as a result of execution of
6 "load y" will be "17"?

7 MR. KAMBER: Objection. Vague, "actual data."

8 THE COURT: Do you understand what "actual data"
9 means?

10 THE WITNESS: Well, there's actual data in a number
11 of locations. In this case, the -- the symbolic reference is
12 as we talked about --

13 MR. JACOBS: I withdraw the question, Your Honor.

14 BY MR. JACOBS:

15 Q. The data in the data object that is being retrieved is the
16 value "17"; true, sir?

17 A. That's correct.

18 Q. But the actual -- but the value of 17 -- sorry. In order
19 to do that, the numeric memory location corresponding to the
20 symbolic reference "y" must first be determined; true, sir?

21 A. That's right. You need to know that it's slot 2, to get
22 to the 17.

23 Q. But the value "17" in the data object is not used to make
24 that determination; true, sir?

25 A. The value itself is not -- the "17" is not used to find

1 the location itself.

2 Q. So the data in the data object that is being obtained by
3 the load instruction is not any of the information used to
4 determine the correspondence between symbolic references and
5 numeric memory locations in Figure 1A and 1B; true, sir?

6 A. Can you repeat the question?

7 Q. Uh-huh. The data in the data object being obtained by the
8 load instruction is not any of the information that is used to
9 determine the correspondence between the symbolic references
10 and numeric memory locations; true, sir?

11 A. It actually may be the case that the "y" is in the data
12 object as part of the search to resolve the symbolic reference.

13 Q. But the "17" is the data in the data object; true, sir?

14 A. It may also be the "y."

15 Q. Well, let's cut to the chase on this.

16 In both Figure 1A and 1B, both load instructions are
17 getting the value "17" out of the data object; true, sir?

18 A. As the final step.

19 Q. The system in Figure 1A refers to the data using a numeric
20 memory location slot 2?

21 A. That's correct.

22 Q. And the system in 1B refers to the data using a symbolic
23 reference "y"?

24 A. Yes.

25 Q. And so -- and when we're obtaining data within the meaning

1 of Claim 11 of the '104 Patent, the data that we're obtaining
2 is the value "17" in the data object; true, sir?

3 **A.** Yes. The load "y" will ultimately obtain "17."

4 **Q.** So the value of the data being obtained through the load
5 instruction is the data object value "17"?

6 **A.** Yes.

7 **THE COURT:** If this is a good time to break --

8 **MR. JACOBS:** Yes.

9 **THE COURT:** -- we will right now.

10 Remember, 15 minutes. Please remember the
11 admonition.

12 **THE CLERK:** All rise.

13 (Jury out at 9:16 a.m.)

14 **THE COURT:** Please be seated.

15 Any issues for the judge?

16 **MR. JACOBS:** Not from us, Your Honor.

17 **MR. VAN NEST:** I don't believe so, Your Honor.

18 **THE COURT:** Is this your last witness?

19 **MR. VAN NEST:** He is.

20 **THE COURT:** And how much longer on cross?

21 **MR. JACOBS:** Probably about half an hour, 40 minutes,
22 Your Honor.

23 **THE COURT:** Will there be a rebuttal case?

24 **MR. JACOBS:** Yes.

25 **THE COURT:** And how long will that be?

1 **MR. JACOBS:** Maybe 45 minutes, an hour.

2 **THE COURT:** Any surrebuttal case?

3 **MR. VAN NEST:** I think there will be cross of the
4 rebuttal case, but I don't expect any surrebuttal. We would
5 reserve on that, Your Honor.

6 **THE COURT:** We'll see if we have time for the
7 closings today, or not. I don't want to say yes or no on that
8 yet.

9 So we will take our 15 minutes right now.

10 **MR. VAN NEST:** Thank you, Your Honor.

11 (Recess taken from 9:17 to 9:31 a.m.)

12 **THE COURT:** All right. Back to work. Please be
13 seated.

14 **MR. JACOBS:** We wanted to ask you, Your Honor, if we
15 could take a minute to report some progress.

16 **THE COURT:** Great.

17 **MR. JACOBS:** This one, there is a condition on.

18 **THE COURT:** All right.

19 **MR. JACOBS:** We have: Subject to the condition, we
20 have agreed to make indirect infringement follow automatically
21 from a finding of direct infringement, so that the jury would
22 not have to decide indirect infringement, inducement or
23 contributory.

24 The court will recall there are a fair line of
25 instructions on that. There's a whole set of questions on the

1 verdict form. And, so, this would substantially streamline the
2 decisions the jury needs to make. This would be similar to the
3 way we treated, for the jury purposes, indirect infringement in
4 the copyright case.

5 The one condition is this: We'll both need to
6 reconfigure our closings. The way the clock might work, I may
7 be disadvantaged by that because I might -- if we literally
8 went to 1:00 o'clock, I might have to do the closing today.
9 Google would have a chance overnight to reconfigure.

10 So the idea would be that we could both do our
11 closings tomorrow, with reconfigured closings based on this
12 stipulation.

13 **THE COURT:** The condition is that closings would be
14 tomorrow?

15 **MR. JACOBS:** Correct. And Google agrees to this
16 approach.

17 **THE COURT:** All right. We'll do that.

18 So your stipulation to eliminate indirect
19 infringement is out. That means -- let me make sure I
20 understand it -- indirect infringement is out of the
21 instructions and out of the verdict form?

22 **MR. VAN NEST:** That's right, Your Honor.

23 **MR. JACOBS:** Yes. I can read --

24 **THE COURT:** Read the exact stipulation.

25 **MR. JACOBS:** (As read:)

1 "The parties hereby stipulate and agree that
2 if Google is found to directly infringe
3 either/or both of the '104 and '520 Patents,
4 the Court shall enter a judgment in favor of
5 Oracle with respect to both its direct and
6 indirect infringement claims of the
7 directly-infringed patents.

8 "The issues of indirect infringement, induced
9 and contributory infringement, therefore,
10 need not be submitted to the jury."

11 And then there's additional language about how this
12 not constituting an admission, et cetera.

13 **THE COURT:** All right. Well, how could it not be an
14 admission, then?

15 **MR. JACOBS:** Actually, let me read it.

16 "The parties agree that this stipulation does
17 not constitute an admission that the use by
18 any entity of Android or other technology
19 infringes the '104 or '520 Patents or any
20 patents related to or claiming common
21 priority benefit with those patents, and that
22 this stipulation may not be used to allege or
23 to attempt to prove liability of any entity
24 for infringement of such patents."

25 I suppose, on reading it, other than -- any entity

1 other than Google.

2 **MR. VAN NEST:** That's right.

3 **MR. JACOBS:** (As read:)

4 "... any entity other than Google for
5 infringement of such patents.

6 "The parties further agree that this
7 stipulation shall not expand the scope or
8 number of specific handsets for which Oracle
9 may be entitled to an award of damages, as
10 previously limited by the Court."

11 **THE COURT:** So if the jury was to find infringement,
12 we then go to the damages phase. And does the jury then assume
13 that for the patents for which there was liability established,
14 that the damages include the handsets for those manufacturers?

15 **MR. JACOBS:** Yes, Your Honor.

16 **THE COURT:** Correct?

17 **MR. VAN NEST:** They would assume that indirect
18 infringement was found as well, yes.

19 **THE COURT:** Well, all right. But -- all right.
20 Well, but let's be clear. It's not just an assumption. It
21 would be liability at that point.

22 **MR. VAN NEST:** That's right.

23 **THE COURT:** For Google but not for the handset
24 manufacturers.

25 **MR. VAN NEST:** That's right.

1 **MR. JACOBS:** Could we have a quick sidebar, Your
2 Honor? We'll be able to help you out.

3 **MR. VAN NEST:** I'm not sure we need that.

4 **THE COURT:** Something the witness can't hear? Or is
5 it something that the public can't hear?

6 **MR. VAN NEST:** The latter. But I don't think we
7 actually need to come to sidebar. The answer to your question
8 is, yes, this would eliminate putting the indirect liability,
9 indirect infringement issues to the jury.

10 If they return a verdict of direct infringement, Your
11 Honor would enter a judgment of indirect infringement as well,
12 and the jury would have that judgment as the basis for
13 whatever --

14 **THE COURT:** Well, but, you understand the judgment
15 comes later. You're using it as -- a figure as a term of art.
16 The judgment comes at the end of the case. What you would mean
17 is it would be like if a verdict was entered.

18 **MR. VAN NEST:** Right.

19 **THE COURT:** It would be treated as if the jury had
20 found not only direct but indirect. And that would be the
21 verdict going into Phase Three. That's what you mean.

22 **MR. VAN NEST:** That's what I mean.

23 **MR. JACOBS:** And that's what -- that's what we mean,
24 Your Honor.

25 **THE COURT:** All right. Well, I think I understand

1 your arrangement. So while this would be totally binding on
2 Google, it would not be binding on Motorola or anyone else
3 because they are not present and they have their right to their
4 day in court.

5 **MR. VAN NEST:** Exactly right.

6 **MR. JACOBS:** Yes.

7 **THE COURT:** Is there anything more to be said right
8 now?

9 **MR. VAN NEST:** No.

10 **MR. JACOBS:** No. We can submit this, Your Honor, or
11 we can clean it up.

12 **THE COURT:** I suggest that you clean it up. But, you
13 have said it on the record, and I think there is a binding
14 stipulation on the record.

15 **MR. VAN NEST:** We agree with that, Your Honor.

16 **MR. JACOBS:** We agree, too, Your Honor.

17 **THE COURT:** So try to clean it up. But failing that,
18 it's on the record.

19 All right. Can we now bring the jury back and
20 continue?

21 **MR. VAN NEST:** I believe so.

22 (Jury enters at 9:38 a.m.)

23 **THE COURT:** Please be seated. Let's have everyone
24 make themselves comfortable and get your notepads ready. All
25 set over there?

1 (Jurors affirm.)

2 **THE COURT:** Please go ahead.

3 **BY MR. JACOBS:**

4 **Q.** All right. Let's do this again, and make sure we get it
5 clearly, Dr. August.

6 IGET is a Dalvik bytecode instruction?

7 **A.** Correct.

8 **Q.** Dalvik Virtual Machine executes IGET instructions?

9 **A.** That's correct.

10 **Q.** The IGET instruction finds the instance of an object and
11 retrieves the data from a specified field?

12 **A.** Yes.

13 **Q.** And the object that we've depicted here on this chart is
14 the instance object; true, sir?

15 **A.** True.

16 **Q.** The IGET instruction obtains the actual field data out of
17 an object; true, sir?

18 **MR. KAMBER:** Objection. Form. "Actual data," vague.

19 **MR. JACOBS:** Mr. Lee, can I have Mr. McFadden's
20 testimony at page 3751 -- 3759, line 21 to 3706, line 4.

21 (Transcript displayed.)

22 **BY MR. JACOBS:**

23 **Q.** So I was asking Mr. McFadden about this. And Mr. McFadden
24 wrote the code; true, sir?

25 **A.** True.

1 Q. And I asked him, at 3759, line 21. Line 21:

2 "So the IGET instruction, the role of the
3 IGET instruction is to obtain actual field
4 data from an object; true, sir?"

5 Mr. McFadden answered: "True."

6 "QUESTION: And what the IGET instruction
7 does is obtain actual field data from an
8 object and store it in a Dalvik register?"

9 And Mr. McFadden answered: "Yes."

10 And then I asked him again:

11 "QUESTION: So that IGET stores the actual
12 field data into the register; true, sir?

13 "Yes."

14 Do you agree or disagree with Mr. McFadden, sir?

15 A. I agree.

16 Q. Now, just to get the terminology right, in the very first
17 part of your testimony yesterday you used a term "non-reference
18 data." Do you recall that?

19 A. Yes.

20 Q. And then we didn't hear much more about it. But I take it
21 that actual field data that Mr. McFadden was referring to is
22 non-reference data in your analysis; is that true, sir
23 (indicating)?

24 A. It may be.

25 Q. Is the value of this field non-reference data

1 (indicating)?

2 A. It may be.

3 Q. And what are the conditions?

4 A. Well, for example, if it were an integer it would be --
5 integer treated as an integer, it would be non-reference data.

6 Q. And what would be the conditions it would not be
7 non-reference data?

8 A. Could be a pointer to an object. That would be a
9 reference.

10 Q. In terms of actual field data, the language that
11 Mr. McFadden used or agreed with, is that the same as
12 non-reference data, or not?

13 A. Depends on the type of the field.

14 Q. All right. So let's go with Mr. McFadden's language then.
15 And I'm writing up on this chart "actual field data,"
16 to point to the values in the instance object.

17 Now, the IGET instruction has an operand, the field
18 index; true, sir?

19 A. Yeah, an index into the field ID table, yes.

20 Q. And you heard Mr. McFadden testify Friday that the field
21 index in the IGET instruction is not the numerical memory
22 location of the actual field data in an object; true, sir?

23 A. That's true.

24 Q. Let's just get that again. You agree with Mr. McFadden
25 that the field index in the IGET instruction is not the

1 numerical memory location of the actual field data in an
2 object; true, sir?

3 A. True.

4 Q. And if we look at the drawing, now, that we've put in
5 front of the jury with the instance object and the actual field
6 data, the instance object in this drawing corresponds to the
7 data object in the '105 [sic] patent; true, sir?

8 A. These are different estimates. The patents figure didn't
9 have the Dalvik Virtual Machine in mind.

10 Q. But the object from which the actual field data has been
11 retrieved in the patent is called a data object; true, sir?

12 A. That's correct.

13 Q. So if we put "'104 Patent" down here, we call this a data
14 object. The actual field values are like the 17 in the data
15 object; true, sir?

16 A. The -- the values in the object are like the 17, yes.

17 Q. And 01 is not the numerical memory location of actual
18 field data in the instance object?

19 A. That's right. There's no arrow that directly connects 01
20 to the first field in the instance object.

21 Q. Now, in this illustration, the slide that became -- the
22 slide 20, that I put up on this board here, the -- only one of
23 the three IGET operands is illustrated; true, sir?

24 A. That's right.

25 Q. The third operand, in field@CCCC in that format, that's

1 the 01; right, sir?

2 A. That's right.

3 Q. And the operand 01 specifies the field from which IGET
4 retrieves the actual data value, in this example, "17"; true,
5 sir?

6 A. It specifies the entry corresponding to that field in the
7 field ID table, through an index.

8 Q. So you disagree. You're saying that the 01 does not
9 specify an actual field data?

10 A. It's not that I disagree. I'm just clarifying the point.

11 Q. 52 01 in this illustration retrieves actual field data 17;
12 true, sir?

13 A. In this example, on the last step, it retrieves the field
14 data from 17, and places it into a register.

15 Q. Now, you testified that Dalvik bytecodes do not contain
16 symbolic references at all; true, sir?

17 A. That's true.

18 Q. And in your report you explained why that is your opinion,
19 at paragraph 105. You should have your report --

20 A. I would like to have a copy of that.

21 Q. Uhm?

22 A. I would like to have a couple of that, if I may.

23 Q. Yeah.

24 MR. JACOBS: May I, Your Honor?

25 THE COURT: Sure.

1 **THE WITNESS:** What paragraph?

2 **MR. JACOBS:** 105.

3 (Document displayed.)

4 **BY MR. JACOBS:**

5 **Q.** Now, you said in the middle there, you said that:

6 "Dalvik Virtual Machine does not define an
7 instruction format that contains a symbolic
8 reference (e.g. a string representing the
9 name of the reference) as an operand."

10 Do you see that there?

11 **A.** I see it.

12 **Q.** What you were saying was -- and we learned this from
13 several witnesses -- the way these instructions work, you can't
14 put "y" or "fun" as such in the instruction stream; true, sir?

15 **A.** That's true.

16 **Q.** And that's because the designers of Java actually decided
17 that the operands should be a fixed length; true, sir?

18 **A.** That's true.

19 **Q.** And, in fact, just as an aside, what you've described here
20 as the structure of the dex format is, in all relevant
21 respects, the same as the structure of the output of a Java
22 compiler; true, sir?

23 **A.** As it relates to numeric and symbolic references, that is
24 correct.

25 **Q.** And so if your testimony is correct that there are never

1 symbolic references in a dex file output by the dx tool, the
2 same would be true of a Java file output by a Java compiler?

3 A. Subject to what happens in the dx tool, but with --
4 excluding that, potentially.

5 Q. The format is the same of the instructions in -- as
6 illustrated on slide 20 of your presentation, and the output of
7 a Java compiler?

8 A. No. The instruction formats are different. For one,
9 there are many more -- there are register references in the
10 Dalvik Virtual Machine, for example.

11 Q. That the operands are fixed length is true for both; true,
12 sir?

13 A. That's true.

14 Q. True for a dex file and true for a -- true for a dot-class
15 file?

16 A. I believe so.

17 Q. And so if what's going on is that because -- you say
18 there's no symbolic references because you can't have a "y" or
19 a "fun" in the instruction stream; true, sir?

20 A. That's not why. That's not the reason I'm giving.

21 Q. Let's look at what you put in your report. You said:

22 "In other words the Dalvik Virtual Machine
23 does not define an instruction format that
24 contains a symbolic reference as an operand."

25 Do you see that?

1 A. I see that.

2 Q. So you're saying if you follow the Dalvik Virtual Machine
3 rules, there is no instruction format that contains a symbolic
4 reference; true, sir?

5 A. Yes.

6 Q. Thus -- you go on:

7 "Thus, it would be impossible to construct a
8 Dalvik bytecode instruction that contains a
9 symbolic reference."

10 Do you see that, sir?

11 A. That's true.

12 Q. And you stand by that?

13 A. I do.

14 Q. And the same would be true for a Java bytecode
15 instruction; true, sir?

16 A. Again, subject to any changes that happened in the dx
17 tool.

18 Q. Well, I'm sorry, sir. This is the Dalvik Virtual Machine,
19 so this is after the dx tool; isn't it, sir?

20 A. Right. So it's saying that the Dalvik Virtual Machine
21 does not contain an instruction format containing a symbolic
22 reference.

23 And if you don't have an instruction format that
24 contains a symbolic reference, you can't have an instruction
25 that contains a symbolic reference.

1 Q. That's your logic, right?

2 A. The second part follows from the first.

3 Q. And the same would be true for the format of the output of
4 a Java compiler; true, sir?

5 A. That's a -- a different analysis.

6 Q. Well, is it your testimony that there are symbolic
7 references in the instruction stream output by a Java compiler?

8 A. I didn't testify to that.

9 Q. Is it your testimony?

10 A. Oh. Yes, I believe that the javac compiler does not
11 output symbolic references in the instruction stream.

12 Q. I'm sorry, I didn't hear what you said. "Does not
13 output"?

14 A. That's correct.

15 Q. So by your testimony, the '104 Patent, to the extent it
16 doesn't apply to dex code in Dalvik, it doesn't apply to Java;
17 true, sir?

18 MR. KAMBER: Objection, Your Honor. The parties have
19 an agreement regarding the use stipulation. This is not
20 relevant testimony in light of that stipulation.

21 MR. JACOBS: It's a technical point.

22 MR. KAMBER: We were told that Oracle would not be
23 going into subject matter of practice of the '104 Patent.
24 There is no evidence that the '104 Patent is practiced by Java.

25 MR. JACOBS: It's a technical point, Your Honor,

1 comparing the instruction format of the two systems,
2 particularly when --

3 **THE COURT:** It doesn't -- for infringement purposes,
4 it makes no difference what Java does. That's like comparing
5 the patent owner's product to the accused product.

6 For patent infringement purposes, what matters is
7 what happens comparison between the claim language and the
8 accused product.

9 So the objection is sustained.

10 **BY MR. JACOBS:**

11 **Q.** Looking again at your report, sir, you said:

12 "It would be impossible to construct a Dalvik
13 bytecode instruction that contains a symbolic
14 reference."

15 True, sir?

16 **A.** That's true.

17 **Q.** And that is your testimony?

18 **A.** That is true, yes.

19 **Q.** Now, you agree that Dalvik instructions contain references
20 to strings, methods, classes, and fields; true, sir?

21 **A.** They contain references to entries in the constant pool
22 tables.

23 **Q.** And is it your testimony, sir, that those cannot be
24 symbolic references?

25 **A.** Uhm, as we went through before, they are actual locations,

1 numeric memory locations.

2 Q. Now, in your slide, you show 52, which corresponds to the
3 IGET instruction; right, sir?

4 A. That's the opcode for IGET.

5 Q. And there are three operands: VA, VB, and field@CCCC.
6 True?

7 A. True.

8 Q. Now, you just showed one operand in order to make it
9 simpler for us; right, sir?

10 A. Yes.

11 Q. The operand you showed, which is "01," that corresponds to
12 field@CCCC; true, sir?

13 A. That is true.

14 Q. And that's what you're referring to in paragraph 105 of
15 your report as a numeric index; true, sir?

16 A. That's right.

17 Q. And so just to clarify this on the -- where's blue? There
18 it is.

19 The field@CCCC, that corresponds to 01; true, sir?

20 A. In that figure, yes.

21 Q. And the 01 that -- you're saying that's a number; true,
22 sir?

23 A. It's not just a number. It's also a numeric reference, a
24 memory location.

25 Q. But it's in the Dalvik instructions; you agree with that?

1 A. Oh, yeah.

2 Q. Because the way your understanding in the Dalvik
3 instructions, it has to be in the -- what you call the
4 instruction stream; true, sir?

5 A. The insn portion.

6 Q. The insn is specified in the Dalvik data format; true,
7 sir?

8 A. That's right. It may be insns.

9 Q. I think it is, actually.

10 A. Yeah.

11 Q. Now, you heard Mr. Bornstein testify about Dalvik.

12 A. Yes, I did.

13 Q. And you agree that Mr. Bornstein knows what he's talking
14 about when it comes to Dalvik?

15 A. Sure.

16 Q. And you heard that Mr. -- you heard Mr. Bornstein testify
17 that none of those three objects -- sorry, operands, not VA,
18 not VB, and not field@CCCC, is the memory location of the value
19 of the field; true, sir?

20 A. The value of the field in the instance object, yes.

21 Q. And so Mr. Bornstein made it very clear that the -- that
22 although -- that the IGET instruction gets the value of a field
23 and stores it in the register VA; true, sir?

24 A. Repeat the question.

25 Q. The IGET instruction gets the value of a field, the

1 instance field, and stores it in the register VA?

2 A. Yes, in the last step.

3 Q. And VA is not the numeric memory location of the value of
4 the field; true, sir?

5 A. VA will be the value, the actual -- ultimately, will be
6 the value of the field.

7 Q. VA is the destination, is the register; true, sir?

8 A. VA refers to a destination register, true.

9 Q. Where the ultimate -- where the actual field data will be
10 stored; true, sir?

11 A. Where the field data will be stored.

12 Q. And VB, that's not the numeric memory location of the
13 value of the field; true, sir?

14 A. It's a reference to a register that contains the base of
15 the instance object.

16 Q. After the value is obtained from the instance object;
17 true, sir?

18 A. False.

19 Q. Well, let's see. Mr. Bornstein said, VA is the
20 destination register.

21 You agree with that?

22 A. Yes.

23 Q. And he agreed that it's not the numeric memory location of
24 the value of the field. And you agree with that?

25 A. I do.

1 Q. And VB is not the numeric memory location of the value of
2 the field?

3 A. Yeah. As I described, VB is a register reference. That
4 register contains the base address of the instance object.

5 Q. And field@CCCC is not the numeric memory location of the
6 value of the instance field; true, sir?

7 A. That's also true.

8 Q. Now, you heard Mr. McFadden testify last week about
9 Dalvik?

10 A. I did.

11 Q. And you agree that Mr. McFadden knows what he's talking
12 about when it comes to Dalvik?

13 A. I did.

14 Q. And you heard Mr. McFadden testify that none of the three
15 operands VA, VB, and not field@CCCC, none of those is the
16 memory location of the value of the field; true, sir?

17 A. That is true.

18 Q. So, in fact, you would agree that the IGET instruction
19 never contains the numerical memory location of the actual
20 field data that it is supposed to get; correct, sir?

21 A. Contains -- the operands themselves do not contain that
22 location. That's correct.

23 Q. Let me just get it crisply. True or false, the Dalvik
24 IGET instruction never contains the numeric memory location of
25 the actual field data that it is supposed to get and ultimately

1 store in a Dalvik register?

2 **A.** That's correct.

3 **Q.** You agree that the IGET instruction finds the instance of
4 the object and retrieves the data from the specified field;
5 true, sir?

6 **A.** Actually, the instance object is given to it as a value in
7 one of the registers. It doesn't -- it -- if you mean "find"
8 as in it accesses the register in the second operand, then the
9 answer would be: correct.

10 **Q.** Well, let's see if we can state this more simply.

11 **MR. JACOBS:** Can I have Mr. McFadden's testimony at
12 3221 lines 2 to 7.

13 (Transcript displayed.)

14 **MR. JACOBS:** I asked him:

15 "Can you explain what the iget instruction
16 is?"

17 He answers:

18 "That is the instance field get instruction.

19 What that means is there is an object

20 somewhere and you need to get a piece of data

21 out of it. The data is stored in fields. So

22 what this instruction does is it finds the

23 instance of the object and retrieves the data

24 from the specified field."
25

1 BY MR. JACOBS:

2 Q. Do you agree with his answer, sir?

3 A. Yeah, it is a reasonable summary of the eight steps.

4 The -- again, with the clarification I made earlier about finds
5 the instance of the object.

6 The instance of the object is given to it in a
7 register. And if you mean that accessing that register is part
8 of a finding process rather than a resolution process, then --
9 then this is correct.

10 Q. Do you agree that what the IGET instruction does is find
11 the instance of the object and retrieve the data from the
12 specified field?

13 A. I agree.

14 Q. Now let's look at the Court's claim construction.

15 MR. JACOBS: Can we have Mitchell slide 17, please.

16 (Document displayed.)

17 BY MR. JACOBS:

18 Q. So here's the Court's definition of a symbolic reference.

19 The jury has seen this now many times, as have you and I,
20 Dr. August.

21 "A reference that identifies data by a name
22 other than the numeric memory location of the
23 data."

24 We know that 01 is in the instructions, right,

25 Dr. August? You agree with that, 01 is in insns?

1 A. That's correct.

2 Q. And so it is in the instructions within the meaning of the
3 Court's claim construction order?

4 A. That's right.

5 Q. And we know that 01 is the -- we know that 01 refers to
6 data; true, sir?

7 A. Yes. Data in the field --

8 Q. Just --

9 A. True.

10 Q. Give me a yes or no.

11 And we know that 01 is the same as field@CCCC; true,
12 sir?

13 A. That's correct.

14 Q. And we know that the field@CCCC is not the numeric memory
15 location of the value of the field in the instance object;
16 true, sir?

17 A. That is true.

18 Q. And so with respect to the actual field data over here in
19 the instance object, the field index is a symbolic reference;
20 true, sir (indicating)?

21 A. That's false.

22 Q. It doesn't specify the numeric memory location of the
23 actual field data; does it, sir?

24 A. No, it doesn't.

25 Q. And the definition by the Court's construction is.

1 "A reference that identifies data by a name
2 other than the numeric memory location of the
3 data."

4 True, sir?

5 **A.** That's true.

6 **Q.** And, so, if the data is the actual field data that the
7 IGET instruction is seeking to obtain, then 01 is a symbolic
8 reference; true, sir?

9 **A.** The -- the data referred to by the field@CCCC operand is
10 the entry in the field ID table. That's the data.

11 If you redefine what "data" means, you bring some
12 additional limitation or modification, then you're redefining
13 what the data -- it's clear that the field@CCCC reference is
14 referring to the field ID table. That's the data that it
15 refers to.

16 **Q.** We looked at the '104 Patent and we saw that the value
17 that was being retrieved by the resolution process and by slot
18 2 at was a value in the data object; true, sir?

19 **A.** True.

20 **Q.** And -- but it's your testimony that the data that is being
21 referred to in the Court's claim construction is the -- what
22 you've referred to as the data, which is the constant pool;
23 true, sir?

24 **A.** True.

25 **Q.** Now, you submitted in your report in paragraph 70 --

1 **MR. JACOBS:** Can we have paragraph 70 of
2 Dr. Mitchell's report up, please.

3 (Document displayed.)

4 **THE WITNESS:** Can I have some context for this?

5 **MR. JACOBS:** This isn't the right one.

6 **THE WITNESS:** Oh.

7 **MR. JACOBS:** I'm sorry. Start over.

8 **BY MR. JACOBS:**

9 **Q.** You heard Andy McFadden testify about how dexopt rewrites
10 the IGET instruction into an IGET_QUICK instruction; true, sir?

11 **A.** True.

12 **Q.** And this is in dexopt; true, sir?

13 **A.** That's correct.

14 **Q.** And you agree that dexopt rewrites instructions?

15 **A.** Dexopt rewrites instructions.

16 **Q.** And what -- it rewrites the IGET instruction to replace it
17 with an IGET_QUICK instruction; true, sir?

18 **A.** That's true.

19 **Q.** In fact, what it does is it replaces field@CCCC. It
20 replaces it with a byte offset; true, sir?

21 **A.** That's true.

22 **Q.** And the byte offset is a numeric reference; true, sir?

23 **A.** That's true.

24 **Q.** The byte offset is a numeric reference to the actual field
25 data in an object; true, sir?

1 A. That's correct.

2 Q. So it's your testimony that dexopt rewrites the IGET
3 instruction, shown here as 52, into an IGET_QUICK instruction,
4 and that the IGET_QUICK instruction contains a numeric
5 reference; true, sir?

6 A. True.

7 Q. Do you agree that a dex file has symbolic references to
8 methods and fields when it arrives on a device?

9 A. The dex file does, yes.

10 MR. JACOBS: Can I have slide 30 of his dec.

11 (Document displayed.)

12 BY MR. JACOBS:

13 Q. So these are the functions that you listed for -- these
14 are the dvmResolve functions that you listed; true, sir?

15 A. I listed these, yes.

16 Q. And these are part of the Dalvik VM; true, sir?

17 A. True.

18 Q. And these are functions in Resolve.c?

19 A. True.

20 Q. Do you agree that Dalvik VM resolves symbolic references
21 dynamically?

22 A. It does.

23 Q. Now, you were here when Dan Bornstein testified that
24 dexopt was part of the Dalvik Virtual Machine; true, sir? You
25 were here when he testified to that.

1 A. Yes.

2 Q. And do you agree that dexopt is part of the Dalvik Virtual
3 Machine?

4 A. In that it shares the same code.

5 Q. And dexopt loads the application dex file into the Dalvik
6 VM; true, sir?

7 A. No.

8 Q. That was a no? Is that what you said?

9 A. Dexopt processes the file that is placed on the device.

10 Q. Dexopt processes the dex file when the Dalvik Virtual
11 Machine is running; true, sir?

12 A. Not for the same program.

13 Q. That wasn't what I asked.

14 Does dexopt process the dex files when the Dalvik
15 Virtual Machine is running?

16 A. Not -- sometimes.

17 Q. Well, let's see what Mr. McFadden said on this point.

18 MR. JACOBS: Can I have transcript at 3246, line 2:

19 "QUESTION: And so the dexopt loads the dex
20 file, the application dex file into the
21 Dalvik VM, correct?"

22 Mr. McFadden said: "Yes."

23 I asked him:

24 "And so it processes -- dexopt processes the
25 dex files when the Dalvik Virtual Machine is

1 running?"

2 He said: "Yes."

3 Do you agree or disagree with his testimony?

4 A. I agree. I'm just being more specific that it's
5 sometimes.

6 Q. And:

7 "In fact" -- I said to him -- "you described
8 dexopt in this document as really just a
9 backdoor into the VM."

10 Correct, sir?

11 A. That's how he describes it in the documentation, yes.

12 Q. Do you disagree with that characterization in the
13 documentation?

14 A. No.

15 Q. And dexopt loads the file into the Dalvik Virtual Machine,
16 true?

17 A. Dexopt loads the file into dexopt.

18 Q. It loads it into the Dalvik VM; true, sir?

19 A. If you mean the code that composes the VM as it's a part
20 of dexopt, sure.

21 Q. And Dalvik -- and dexopt processes the dex files when the
22 Dalvik Virtual Machine is running; true, sir?

23 A. Sometimes.

24 Q. So do you agree that dexopt resolves symbolic references?

25 A. No.

1 Q. Were you here when Mr. Bornstein testified that dexopt
2 will resolve symbolic references in many cases?

3 A. Yes.

4 Q. And he said -- and I want to run this by you and see if
5 you agree or disagree with it. I questioned him, at 3579
6 lines, 2 to 8:

7 "So when you wrote 'when a dex file arrives
8 on' -- when you said, 'when a dex file
9 arrives on a device it will have symbolic
10 references to methods and fields, but
11 afterwards it might just be a simple integer
12 vtable offset,' you meant to be conveying
13 that, in many cases, the symbolic reference
14 will be resolved by dexopt?

15 "ANSWER: That's right."

16 Do you disagree with Mr. Bornstein?

17 A. He's not applying the Court's construction here. He's
18 using the ordinary meaning of the words.

19 Q. The ordinary meaning of "symbolic reference"?

20 A. Well, the -- the part that described a symbolic reference
21 as being resolved dynamically rather than statically is not
22 something he has in mind in this question -- in this answer.

23 Q. Because he was using symbolic references the way one
24 ordinarily would; true, sir?

25 A. Outside the context of the '104 Patent, you might use

1 symbolic reference in that way.

2 Q. You weren't suggesting he was using the phrase improperly;
3 were you, sir?

4 A. No.

5 Q. Let's talk for a minute about performance testing.

6 You reviewed Mr. Vandette's report that describes the
7 performance testing he performed with respect to the '104
8 Patent; true, sir?

9 A. Yes.

10 Q. You offered some criticisms of his work in your own
11 report?

12 A. That's correct.

13 Q. You wrote that Mr. Vandette should have done some things
14 differently?

15 A. Yes, generally.

16 Q. You didn't do those things yourself; true, sir?

17 A. That's true.

18 Q. And you did no performance testing of Android before
19 preparing your own report?

20 A. That's correct.

21 Q. And Google -- despite all its resources, Google didn't
22 provide you with any test results obtained by Google for you to
23 consider for your report; did it?

24 A. No, it did not.

25 Q. So there is no experimental data of your own in your

1 report that would confirm or contradict Mr. Vandette's test
2 results?

3 A. It's not -- the data wasn't the question. It was the
4 methodology that I questioned.

5 Q. But you have no experimental data; true, sir?

6 A. That's true.

7 Q. Now, Mr. Vandette used CaffeineMark and SyMark benchmarks.
8 Do you recall that?

9 A. Yes.

10 Q. Do you agree that CaffeineMark is a standard benchmark
11 accepted in the industry?

12 A. It's accepted for certain purposes.

13 Q. It's a standard benchmark; true, sir?

14 A. What do you mean by "standard"?

15 Q. It's used across the industry. It wasn't specially
16 selected uniquely by Mr. Vandette for purposes of his report?

17 A. That's correct.

18 Q. And the same for SyMark; true, sir?

19 A. Correct. True.

20 Q. And, in fact, Google uses both of those to evaluate Dalvik
21 performance; true, sir?

22 A. I've seen references to that, yes.

23 Q. Now, you studied Android when you began your work on
24 your -- on this report?

25 A. That's correct.

1 Q. You studied -- you learned that Android is on the -- or
2 maybe you knew before, that Android is on a Google website for
3 download?

4 A. Yes, I knew that.

5 Q. And that it's downloaded to people who want to use
6 Android, and then they can install it on their devices; true,
7 sir?

8 A. You mean developers?

9 Q. Developers or companies that want to install Dalvik on a
10 device.

11 A. Sure, it's available for them.

12 Q. I just want to go back and make sure the jury understands
13 exactly what's going on here.

14 52 01 IGET field@CCCC, where CCCC here is 01
15 (indicating), what this instruction does is retrieve the actual
16 field data from the instance object and place it in a register;
17 true, sir?

18 A. In a last step, yes, that's true.

19 Q. And 52 01, the 01 does not specify the numerical location
20 of that actual field data in memory; true, sir?

21 A. The 01 is a reference to an entry in the field ID table.

22 Q. 01 is not the numeric memory location -- let's have the
23 Court's claim construction up one more time.

24 (Document displayed.)

25 Q. 01 is not a reference that identifies the data, the actual

1 field data in the instance object by a numeric memory location
2 of the data; true, sir?

3 A. Am I supposed to be relating that to the claim
4 construction? That's not what it says.

5 Q. Well, it defines a -- it defines a symbolic reference as
6 something other than data that is referred to by other than
7 a -- by a numeric memory location; true, sir?

8 A. Would you repeat the question.

9 Q. Sure. You see the Court's claim construction, symbolic
10 reference. You see that?

11 A. Yes.

12 Q. "a reference that identifies data by a name other than the
13 numeric memory location of the data." Do you see that, sir?

14 A. Yes.

15 Q. Now, you agree that a number can be a name, for present
16 purposes; true, sir? In general.

17 A. In general, yes.

18 Q. So it's not the fact that it's a number, in your view,
19 that means it's not a symbolic reference; true, sir?

20 A. No. As you saw when I went through the analysis, I wasn't
21 considering the fact that it was a number.

22 Q. And --

23 A. It just so happens -- sorry.

24 Q. If the data that is being referred to in the claims of the
25 '104 Patent is the actual field data, then 01 is a symbolic

1 reference; true, sir?

2 **A.** Say that again.

3 **Q.** Well, let's just take it part by part. It's a reference,
4 right? 01 is a reference to something?

5 **A.** Yes. It's a reference to an entry in the field ID table.

6 **Q.** It's a reference; true, sir?

7 **A.** It's a reference.

8 **Q.** And if -- and identifies data; true, sir?

9 **A.** It does identify data.

10 **Q.** And if the data that we're discussing in this construction
11 is the data in the actual field data -- hold that thought --
12 the data that we're discussing is the data in the instance
13 object, the actual field data, then this reference, 01,
14 identifies that data by a name other than the numeric memory
15 location of the data; true, sir (indicating)?

16 **MR. KAMBER:** Objection. This is outside the Court's
17 claim construction order.

18 **THE COURT:** Overruled. Please answer.

19 **THE WITNESS:** Yeah, the -- the -- the reference
20 identifies data. The data that it identifies is in the field
21 ID table.

22 If you say that it identifies something that it
23 doesn't refer to, then you're not applying the Court's
24 construction.

25

1 BY MR. JACOBS:

2 Q. Stay with me for a minute. We just have to do it this
3 way.

4 "A reference that identifies data by a name
5 other than the numeric memory location of the
6 data."

7 Do you see that?

8 A. I see that.

9 Q. Let's just take that clause for a minute and simplify it.
10 We'll go up to the comma. Do you see that?

11 A. Sorry?

12 Q. We'll go up to the comma, and we'll stop.

13 A. Okay.

14 Q. And we'll just focus on the first half of this definition.
15 Do you see that?

16 A. Yes. That sounds good.

17 Q. Because you agree that in the bytecode interpreter in
18 Resolve.c there's no dynamic static issue; true, sir?

19 A. That's correct.

20 Q. So let's just focus on -- and you also agree, by the way,
21 that if 01 qualifies a symbolic reference in -- as a symbolic
22 reference in Dalvik, then setting aside the dynamic issue it
23 would qualify as a symbolic reference in dexopt; true, sir?

24 A. Setting aside the -- you're saying, assume that the
25 operand is a symbolic reference, and ignore the second part of

1 the claim construction, then it would be a symbolic reference
2 in both dexopt and Resolve.c.

3 Q. That's my question.

4 A. Is that the question? Then the answer is yes.

5 Q. Okay. Now, just assume with me that the data that is
6 being referred to in the claims and, hence, in this claim
7 construction, is actual field data in the instance object.
8 Okay? Are you with me?

9 A. Yes.

10 Q. This 01 does identify that data; true, sir?

11 A. No. It refers to the field ID table entry.

12 Q. Even though 52 01 will retrieve the actual field data from
13 the instance object, your testimony is 01 doesn't refer to the
14 actual field data in the instance object?

15 A. That's correct.

16 Q. If it does refer to the data within the meaning of the
17 claim construction, you agree that it does so without
18 identifying a specific memory location of the instance object;
19 true, sir?

20 A. Are we -- do we still have the earlier assumption in
21 place?

22 Q. Yes.

23 A. I just want to make sure I've got them all lined up.

24 (Laughter)

25 Q. Let's write them on here. Let's write them on here.

1 This is the data. So red is assumptions. This is
2 the data. And 01 identifies that data. Okay. With me so far?

3 **A.** Yeah.

4 **Q.** You don't think it identifies the data; true, sir?

5 **A.** With the assumptions in place?

6 **Q.** No. You're challenging that assumption, true, sir; aren't
7 you?

8 **A.** Yeah.

9 **Q.** And so when Mr. McFadden testified about how this all
10 works, do you disagree with him?

11 **A.** No.

12 **Q.** Well, let's look at his testimony one more time, at 3760.
13 And we were looking at this very slide. And I asked him:

14 "Looking at slide 20, we have an IGET
15 instruction with a '01' as the field index.

16 The IGET instruction doesn't obtain the
17 number '01' and store '01' in a Dalvik
18 register; true, sir?"

19 Mr. McFadden answered: "True."

20 "The IGET instruction doesn't obtain the
21 number '2'" -- we were looking at the field
22 ID table (indicating) -- "doesn't obtain the
23 number '2,' shown here under field ID, or
24 '76' from the string ID table, and store '2'
25 or '76' in a Dalvik register; does it?"

1 **"ANSWER:** It does not.
2 "The IGET instruction doesn't obtain the name
3 'fun' and store that in a Dalvik VM register;
4 does it?"
5 Recall that we had "fun" over here where "y" is now.
6 He said:
7 "True."
8 "It doesn't obtain the name 'byte' and store
9 that in a Dalvik Virtual Machine register;
10 does it?
11 "No," he said.
12 "The actual data that is obtained by the IGET
13 instruction and stored is the value of the
14 field named 'fun' in an object; true?"
15 I asked him. And he answered:
16 "True."

17 **A.** There's a little trick here. In the earlier questions
18 you're talking about what's actually stored in the virtual
19 machine register.

20 But all those things that he said weren't stored in
21 the virtual machine register were actually accessed and
22 referred to and manipulated by the instruction.

23 **Q.** But what 52 01 does is retrieve an actual field data --
24 and, uniquely, it doesn't go all over memory, it ends up at a
25 particular data location through resolution, and puts the value

1 of that field in a register; true, sir?

2 **A.** Repeat the question.

3 **MR. JACOBS:** Can you read it back.

4 (The reporter read the pending question.)

5 **THE WITNESS:** That is true.

6 **MR. JACOBS:** Thank you, sir.

7 **THE COURT:** Is that it?

8 **MR. JACOBS:** Yep.

9 **THE COURT:** All right. Thank you.

10 **REDIRECT EXAMINATION**

11 **BY MR. KAMBER:**

12 **Q.** I don't want to take up too much time, Mr. August, but I
13 want to go back to a few issues.

14 **MR. KAMBER:** Can we pull up the claim construction?
15 I believe it's slide 29 of Dr. August's presentation.

16 (Document displayed.)

17 **BY MR. KAMBER:**

18 **Q.** The claim construction reads:

19 "A reference that identifies data by a name
20 other than the numeric memory location of the
21 data, and that is resolved dynamically rather
22 than statically."

23 Correct?

24 **A.** That's correct.

25 **Q.** Does the construction read as follows?

1 "A reference that identifies the actual field
2 data in the instance object by a name other
3 than the numeric memory location of the
4 actual field data in the instance object and
5 that is resolved dynamically rather than
6 statically"?

7 **A.** It doesn't say that, and it doesn't mean that.

8 **Q.** Okay. Now, data -- this refers to data, correct,
9 Dr. August?

10 **A.** That's correct.

11 **Q.** To what extent is this data (indicating)?

12 **A.** That is data.

13 **Q.** How is it data?

14 **A.** It's information. It's actual -- in this case, as we
15 talked about earlier, it's a numeric reference data. But it's
16 data.

17 **Q.** To what extent is this "08" in the string ID table data?

18 **A.** That's data, as well. In this case, it's data of the type
19 "numeric reference."

20 **Q.** To what extent is this "y" in entry 8 of the string data
21 column data (indicating)?

22 **A.** It's data. It's data of the type "string" or the symbolic
23 reference.

24 **Q.** Does the entry in the string ID table refer -- well, does
25 the entry in the string ID table, this "08," refer to data by a

1 name other than the numeric memory location of the data?

2 **A.** No. It's a numeric reference. It's the -- refers to the
3 data by its actual location. There it's 08, in the string data
4 table 08.

5 **Q.** Now, there's been a lot of talk about the actual value of
6 the -- excuse me. I want to get the phrase right. The actual
7 field data in the instance object. You've heard reference to
8 that, correct?

9 **A.** Yes.

10 **Q.** So let's talk about this instance object for a moment.

11 This entry at slot 18, this is an offset, correct,
12 Dr. August (indicating)?

13 **A.** That's correct.

14 **Q.** What can be in this instance object by way of data?

15 **A.** Well, it could be a symbolic reference. It could be a
16 numeric reference. Or it could be other non-reference data.

17 **Q.** So the example being shown with the 17, from Figures 1A
18 and 1B, do you recall that?

19 **A.** Yes.

20 **Q.** Does that 17 tell you whether it's non-reference data or
21 reference data?

22 **A.** Just by the virtue of it being 17 doesn't say whether it's
23 reference data or non-reference data.

24 **Q.** Could the 17 be a numeric reference, like an index or an
25 offset?

1 A. It could be.

2 Q. Could the 17 be the actual data 17?

3 A. It could be.

4 Now, I just want to clarify that in the patent
5 description, it does create an example with two points, "x" and
6 "y." And if you understand that part of the description of the
7 figure, then you -- then it's in that case.

8 So if they rewrote the description to say that "x"
9 and "y" are used to find other data, then it would be
10 potentially a symbolic or numeric reference.

11 Q. Let's talk about in Dalvik. Is the data at these entries
12 always non-reference data, as we talked about in your technical
13 tutorial?

14 A. No, it's not.

15 Q. How do you know that?

16 A. Because I write programs. And you can write programs that
17 contain references in instances of objects.

18 Q. Can the data in the instance object be a string of
19 characters?

20 A. It could be.

21 Q. In the example of test1 from Dr. Mitchell's code, where --
22 and if you remember correctly, Dr. Mitchell wrote a -- perhaps
23 we can pull up a slide. I believe it's slide --

24 A. That would be helpful.

25 Q. -- 4 from Dr. Mitchell's presentation.

1 **MR. JACOBS:** Let's just get this up because I think
2 this might help orient us. Actually, let me take this down.

3 (Document displayed.)

4 **BY MR. KAMBER:**

5 **Q.** Here there's Java source code, correct, Dr. August?

6 **A.** Yes.

7 **Q.** And was test1 referred to as HelloWorld?

8 **A.** It's a variable.

9 **Q.** Test1 --

10 **A.** Field. It's referring to a location that will hold or
11 refer to HelloWorld, the string.

12 **Q.** To what extent is test1 a name?

13 **A.** Well, it's a name given by the programmer so that there is
14 some meaning in the programmer's mind about what kind of data
15 is being referred to.

16 **Q.** Now, in this instance object, if the data is here "test1,"
17 the name, or let's say "y," for example, in your world "y"
18 equals HelloWorld, and the "y" is resolved to a location in the
19 instance object, what would be located at the instance with
20 the -- would the string "HelloWorld" be located as data in that
21 instance object?

22 **A.** So the code would be a little bit different, but "Hello
23 World," actually -- the string would actually exist within the
24 String data table. So the data "Hello World," literally the
25 letters H-E-L-L-O and so on, would actually be in the constant

1 pool where this word "data" was crossed out.

2 Q. Let's just say it was 120 -- my handwriting is terrible.

3 So I apologize to the jury -- and it says "Hello World."

4 How does the program get to that actual data with the
5 name "Test 1" or "y"?

6 A. Well, it would use a reference in the instruction, a
7 numeric reference in the instruction, which is a memory
8 location to the String ID table and it could get to the data
9 that way.

10 Q. So, say, 77?

11 A. Sure.

12 Q. And let's imagine that this is 120 here (drawing on
13 demonstrative.) Have I drawn that accurately, Dr. August?

14 A. Yeah.

15 Q. Now, how does it -- what does it do with the 120 once it
16 arrives at this string?

17 A. So this is -- just to be clear, this is not field
18 resolution. This is something else.

19 But it will arrive at the literal string data through
20 a numeric reference, another numeric reference, another numeric
21 reference, and get to the string data, the actual letters
22 "H-E-L-L-O," and so on.

23 Q. Can there be references from the instance object into the
24 string data table?

25 A. Indirectly, yes.

1 Q. Through other numeric references?

2 A. Yes.

3 Q. Let's talk about dexopt for a moment. There was some
4 questioning about dexopt and whether it processes files while
5 the virtual machine is running.

6 Can you explain -- I think there may have been some
7 confusion. Can you explain whether and how the virtual machine
8 is running while dexopt is processing Dalvik bytecode and
9 optimizing it?

10 A. The virtual machine may be doing other things as it
11 relates to other programs. The -- when your device is on, many
12 things are running. But as it relates to the program being
13 installed, dexopt must start and complete first before the
14 virtual machine can -- the interpreter in particular, can
15 interpreter the code.

16 In fact, there may be some time between the
17 installation and the execution of the program. When you have a
18 phone you may download a program and then sometime later run
19 the program. There are two different parts.

20 MR. KAMBER: Let's pull up TX 739, please, just a
21 moment.

22 (Document displayed)

23 BY MR. KAMBER:

24 Q. There was reference to -- Mr. Jacobs asked you some
25 questions about this back door into the VM. Do you recall

1 that?

2 **A.** Yes, I do.

3 **Q.** It's page three of the document. There is a section
4 discussing dexopt at the top there.

5 **MR. KAMBER:** Can we highlight that, please.

6 (Document highlighted)

7 **BY MR. KAMBER:**

8 **Q.** And in the second paragraph it says:

9 "The solution is to invoke a program called
10 dexopt which is really just a back door into
11 the VM."

12 Do you see that?

13 **A.** I see it.

14 **Q.** And what do you understand that reference "a back door
15 into the VM" to mean?

16 **A.** Well, the VM has a lot of code. In some sense it's a
17 library and you can think of that library of code as having an
18 API. And the dexopt program is much smaller because it can
19 leverage the code that's in the VM library.

20 Likewise, the interpreter can be much smaller because
21 it can leverage the code through an API to the VM library.

22 **Q.** The jury is all too familiar with APIs, Dr. August.

23 **A.** I understand.

24 **Q.** This paragraph goes on and it says:

25 "On completion, the process exits, freeing

1 all resources."

2 What do you understand that to be referring to?

3 **A.** So not only does dexopt not execute the program
4 dynamically, but dexopt itself terminates, stops its own
5 execution so the program might be executing. The dexopt might
6 be executing.

7 In this case dexopt -- the program is not yet
8 executed, so it's still static. Dexopt is also a program, but
9 it's not the program we're installing. That runs for a little
10 bit and then terminates, completely finishes its execution and
11 it no longer runs.

12 **Q.** Again, is it your opinion -- or to what extent is it your
13 opinion that dexopt is a static rather than dynamic
14 optimization?

15 **A.** Everything that dexopt does is before the first execution
16 of the program.

17 **Q.** Now, dexopt -- does dexopt resolve symbolic references?

18 **A.** Not -- no.

19 **Q.** Why do you say no?

20 **A.** Because it operates statically rather than dynamically.

21 **Q.** So it doesn't meet the definition of a symbolic reference
22 in that instance?

23 **A.** That's correct.

24 **Q.** Under the court claim construction?

25 **A.** Under the Court's claim construction, yes.

1 Q. Now, there's some question finally, last questions, about
2 whether the "01," or now it's a "77," refers uniquely to an
3 entry in the -- or some data in the instance object or that
4 it's "specifically," I believe is another term that Mr. Jacobs
5 used. Do you recall that?

6 A. Yes.

7 Q. Why do you say that this "01" or "77," "field@CCCC" in the
8 instruction stream does not uniquely identify data in an
9 instance object?

10 A. Well, you need to also have the base of the object. You
11 need to have the value that's in the second operand register.

12 Q. If there were another program that is on the device that
13 refers to, for example, "y" in the string data, would it also
14 have to use the number "01" in order to refer to "y"?

15 A. No. The programmer uses names like "current time," "y,"
16 or "fun" in different parts of the code so that they can talk
17 about the same thing. That's what the linking process is -- is
18 bringing the names -- you use "y" over here, you use "y" over
19 here, you want to use the same "y."

20 If you compile those two parts of the program
21 separately, one program may say 52 01, while the other
22 program -- or other part of the program may say 52 08. That 01
23 in one program and that 08 in the other program can't be used
24 to understand that they are talking about the same thing if, in
25 fact, they are both accessing or ultimately accessing "y."

1 So the operand does not -- that index does not
2 uniquely identify across all programs the data that we're
3 looking for.

4 **Q.** So in the case of that one particular part of the program,
5 you would have to chase the "01" through to the "y," correct?

6 **A.** That's right.

7 **Q.** And in the other part of the program you might be chasing
8 an "08" through to the "01"?

9 **A.** Right. And they may both through some step in the process
10 get to the same symbol, the "y," and at that point you know
11 that both programs, or both halves of the same program, are
12 talking about the same thing.

13 **MR. KAMBER:** No further questions, your Honor.

14 **RECROSS EXAMINATION**

15 **BY MR. JACOBS:**

16 **Q.** All right. Let's see if we can clarify what we meant.

17 **THE COURT:** Oh, no. Wait a minute. How many times
18 are we going to go through this?

19 **MR. JACOBS:** Just one, your Honor.

20 **THE COURT:** How long is this?

21 **MR. JACOBS:** Five minutes.

22 **THE COURT:** You have five minutes.

23 **THE WITNESS:**

24 **MR. JACOBS:** ALL RIGHT.

25

1 BY MR. JACOBS:

2 Q. "Field@CCCC" you left out the "vA" and "vB;" right sir?

3 A. Yes.

4 Q. But with "vB" you know exactly which data objects "CCCC"
5 is located in; true, sir.

6 A. Only in Resolve.c, at runtime.

7 Q. In Resolve.c you know exactly where it is? With that --

8 A. Again --

9 Q. Sorry.

10 A. Again, if you follow the reference to the Field ID table
11 and so on, you do the resolution, you take the value in the --
12 put it all together, yes, you find the data in that field.

13 Q. And the fact that multiple -- that different parts of the
14 code might reference the same variable, that's what you were
15 dealing with in responding to Google's counsel's questions just
16 now, right?

17 A. Right. That is the "y" that actually identifies the data,
18 not the index in the instruction.

19 Q. But "vA," "vB," "CCCC" specifies an actual field data
20 value; true, sir?

21 A. No.

22 Q. It specifies -- it doesn't take you into random memory
23 locations; does it, sir?

24 A. It takes you into the Field ID table.

25 Q. Ultimately after IGET is resolved, it takes you to a

1 unique location in the instance object?

2 **A.** Right. The instruction --

3 **Q.** Thank you. Thank you.

4 No further questions, your Honor.

5 **THE COURT:** All right. May the witness step down?

6 **MR. KAMBER:** He may, your Honor. We may have to
7 recall him in surrebuttal, if necessary.

8 **THE COURT:** All right. For now you're free to step
9 down and you're welcome to stay.

10 **THE WITNESS:** Thank you.

11 **THE COURT:** And watch, of course.

12 (Laughter.)

13 (Witness steps down.)

14 **THE COURT:** So on Oracle's side, next witness.

15 **MR. JACOBS:** I think Google --

16 **THE COURT:** I'm sorry. Google's side, next witness.

17 **MR. VAN NEST:** Your Honor, at this time Google rests.

18 **THE COURT:** All right. Well, another milestone has
19 been reached.

20 Does Oracle wish to present any rebuttal case?

21 **MR. JACOBS:** Yes, your Honor. We wish to call Dr.
22 Mitchell in rebuttal.

23 **THE COURT:** All right. Dr. Mitchell, will please
24 return to the stand.

25 Was he discharged last time or is he still under

1 oath? We'll reswear him.

2 Dr. Mitchell, welcome back. Please raise your right
3 hand.

4 JOHN MITCHELL,

5 called as a witness for the Plaintiff herein, having been first
6 duly sworn, was examined and testified as follows:

7 A. I do.

8 THE CLERK: Okay.

9 DIRECT EXAMINATION

10 BY MR. JACOBS:

11 Q. Welcome, Dr. Mitchell.

12 A. Thank you.

13 Q. On Friday the Court asked Dr. August what the difference
14 was between you -- you and Dr. August about symbolic
15 references. Do you recall that colloquy?

16 A. Yes.

17 Q. Did Dr. August fairly characterize your opinion?

18 A. No.

19 Q. Professor, Dr. August said:

20 "As I understood it, Dr. Mitchell is trying
21 to get the symbolic reference from the String
22 data table into the instruction."

23 So he was saying that you were trying to get this
24 "fun" or "y" over here into the instruction (indicating); do
25 you recall that?

1 A. Yes, I do.

2 Q. Is that what you were trying to do?

3 A. No. It's perfectly happy right where it.

4 Q. And do Dalvik -- do Android Dalvik instructions contain
5 symbolic references?

6 A. Yes.

7 Q. What in the Dalvik instructions is a symbolic reference?
8 What is contained in Dalvik instructions that is a symbolic
9 reference?

10 A. Field index.

11 Q. But those are numbers?

12 A. That's right.

13 Q. Does it matter?

14 A. Not at all.

15 Q. Can a number be a symbolic reference?

16 A. Yes.

17 Q. How do you know?

18 A. Court's claim construction.

19 Q. Let's put it up, please.

20 (Document displayed)

21 Q. What about the Court's claim construction indicates to you
22 that a number can be a symbolic reference?

23 A. There is certainly nothing to prevent that. A number is a
24 perfectly good name.

25 Q. You understand from the last testimony that Dr. August

1 agrees or disagrees with you on that point?

2 **A.** My understanding from this morning is that he agrees on
3 that point.

4 **Q.** Now, let's look at the claim language again from the
5 handouts. Look at Claim 11.

6 You had divided that up in your testimony up into
7 four parts, and the last part was:

8 "Obtaining data in accordance to said
9 numerical references."

10 Do you recall that?

11 **A.** Yes. I think that was part D in an A, B, C, D analysis
12 that I gave.

13 **Q.** Now, Mr. McFadden testified that a Dalvik IGET instruction
14 finds the instance of the object and retrieves data from the
15 specified field; do you recall his testimony?

16 **A.** Yes, I do.

17 **Q.** In your opinion, what data is being obtained by a Dalvik
18 IGET instruction, keeping in mind the claim language of
19 Claim 11:

20 "Obtaining data in accordance to said numeric
21 references"?

22 **A.** So the IGET instruction is meant to get the value stored
23 in a field of an instance object.

24 **Q.** To what extent is the data being obtained by the IGET
25 instruction -- again, with reference to the last clause of

1 Claim 11.

2 To what extent is the data being obtained by the IGET
3 instruction found anywhere in the dex file?

4 **A.** That data is not in the dex file. The dex file is really
5 the program coming from the developer's environment. As the
6 program runs, it creates data.

7 The data that's referred to here in Claim 11 is the
8 data created and manipulated by the program. That's outside
9 the blue and green slide in illustration. The "instance Op"
10 you have drawn over on the right.

11 **Q.** So let's just clarify one thing that we didn't have on the
12 poster before.

13 The dex file, what does that consist of in this
14 depiction?

15 **A.** Okay. The dex file includes Column 1, the -- all the way
16 on the left. It's drawn in blue here. The instructions are
17 contained, that list of OpCodes and operands is contained in
18 the dex file.

19 And then among the four columns in green, the first
20 one is not in the dex file. This Resolved Field table doesn't
21 really belong there in this picture. It's someplace else. But
22 the other three columns, those are part of the dex file.

23 And there's some other columns not shown here, but
24 these three are in the dex file.

25 **Q.** So the data being obtained by the IGET instruction --

1 again, looking at the last clause of Claim 11 -- is that data
2 that is being obtained in the dex file?

3 A. The data -- that data is not in the dex file, no.

4 Q. On this depiction here in this poster, where is that data
5 again?

6 A. In the white area outside the original slide.

7 Q. Over here (indicating)?

8 A. Yes, that's exactly.

9 Q. And we have labeled it?

10 A. "Instance object." That means it's an object created as
11 an instance of a class. An object in programming, programs
12 create objects using the class. Class is defined by
13 programmers.

14 Q. In the IGET instruction, what specifies which field in the
15 object that the data is to be retrieved from?

16 A. The third operand. This simplified illustration, as I
17 think Professor August also acknowledged, only shows the third
18 operand to IGET. There are two others.

19 The third one is this Field index, sometimes written
20 as "field@" and then a number. The number can be written in
21 hexadecimal. That's kind of confusing. It's numbers zero
22 through nine, plus numbers A, B, C, D, E, F. And then we write
23 them in this example using ordinary digits; 0001, for example.

24 Q. Is the Field index in a Dalvik instruction a symbolic
25 reference or a numeric reference to the data that is being

1 obtained?

2 **A.** So it's a symbolic reference, according to the Court's
3 construction.

4 **Q.** And why is that?

5 **A.** We could walk through the construction if you would like.

6 **Q.** Let's go back to the construction.

7 (Document displayed)

8 **A.** I'll start at the beginning.

9 **Q.** Yes.

10 **A.** It's a reference that identifies data. That's the first
11 part. If it didn't identify data, you would have nothing that
12 you could get in an IGET. So it identifies data.

13 It's a name. 01 is the example name here. That name
14 is not the numeric memory location of the data. If it were, we
15 wouldn't have to resolve it. We wouldn't be having this
16 discussion in the first place.

17 So it's a name other than the numeric memory location
18 and it's resolved dynamically rather than statically. To get
19 the numeric memory location, that numeric memory location is
20 needed for the IGET to do what it's supposed to do. If it
21 didn't do that, programs wouldn't run correctly and we
22 wouldn't -- also wouldn't be here.

23 **Q.** Dr. Mitchell, we're going to get a poster of Resolve.c to
24 put up. Let's get started on it.

25 What's the -- what's the issue on infringement of the

1 '104 patent with respect to Resolve.c and its stated
2 functionality?

3 **A.** As far as I can tell, the only contested issue here is
4 whether the field indexes and instructions are symbolic
5 references or not. And that in the end just seems to turn on
6 what we mean by data, according to the last bit of testimony
7 from Professor August.

8 **Q.** What do you understand this poster to be depicting, Dr.
9 Mitchell?

10 **A.** This poster shows kind of a snapshot of a dex file and
11 some arrows indicating some portion of a resolution process.

12 **Q.** And this is -- is this Resolve.c?

13 **A.** I think that's what this slide -- this was a slide from
14 Mr. McFadden, perhaps, first? I don't recall. There was also
15 some slides in Google's opening that were of this form.

16 I believe this was intended to be used to describe
17 Resolve.c. There's the Resolve Field data table, which is used
18 in explaining Resolve.c.

19 **Q.** And a similar slide I used with Dr. August, but let's take
20 a fresh start at it just to -- because there was writing in
21 various places.

22 Are there some things on this that you need to
23 correct?

24 **A.** I think --

25 **MR. JACOBS:** Can I ask Dr. Mitchell to come down?

1 **THE COURT:** Yes, of course.

2 **A.** It's always good to get up and stand in front of a room,
3 so...

4 (Witness steps down.)

5 **THE COURT:** Remember to keep your voice -- please
6 keep your voice loud and clear for the entire jury.

7 **THE WITNESS:** All right. I will try to speak up.

8 So do you want me to --

9 **BY MR. JACOBS:**

10 **Q.** I want you to correct the -- make it more accurate for
11 purposes of the analysis of the issues in the '104?

12 **A.** I think the first thing that's confusing is this word
13 "Data" because as we're seeing the entire issue about
14 infringement and the interpretation of the claim construction,
15 it boils down to where we see the data in this way that the
16 claim is stated. This is really the "Constant Pool." That's
17 the way everyone has talked about it.

18 And, also, I've just separated this Resolved Fields
19 table. This is something that is created as the Dalvik Virtual
20 Machine runs as it does the resolution process. This is a data
21 structure in memory. It's not in the Dalvik dex file at all,
22 so that's a good start.

23 **Q.** And say a little more about the constant pool. How do you
24 get a constant pool?

25 **A.** The constant pool comes from the source code. Source code

1 is compiled to produce a Java bytecode file. The Java bytecode
2 file, the Java bytecode format has constant pools also.

3 The dx tool transforms the Java bytecode into Dalvik
4 dex bytecode and in doing it so reformulates or reformats the
5 constant pool in certain ways.

6 Q. Sorry. Could you write an example program that would help
7 us understand where the constant pool is coming from?

8 A. Sure. There are lots of different programs that might
9 work. Here is a short one that helps us understand what's
10 going on here.

11 So I'll -- I don't know if I can write big enough
12 given the space here, but let's write a class point. So I'm
13 going to use regular high school geometry. I don't know
14 whether you enjoyed high school geometry or not. I happened
15 to, but... You know, that's just me.

16 The reason why this is important in computing is we
17 all use screens and screens have things drawn on them. And the
18 way the computers draw things on screens is using "x" and "y"
19 coordinates and geometry here. So I have the points with an
20 "x" and "y" coordinate.

21 And since this, the type of "y" here is a byte,
22 ordinarily we want to use integers, which are bigger than
23 bytes. But byte is an integer, so it's perfectly good for
24 talking about "x" and "y" points.

25 So let's have a byte field "x," a byte field "y," and

1 then to do something, I'll write a method. "Void" just means
2 this method doesn't return a value. It just does something.

3 And then let's try moving up. So in this "x" "y"
4 coordinate, a point will move up if you change its "y"
5 position. So we could move up by saying "y = y + 1."

6 Then you could have other stuff in the class, but I
7 think that's enough for us to have a good discussion and make
8 sense of what's going on here just to have that much.

9 So here is a class with at least two fields and one
10 method that uses one of the fields. It adds one to the number
11 "y," so it has to get the value of this field, add one to it,
12 and put the value back in this field. Otherwise, the point
13 doesn't move on the screen and you're not going to have much
14 fun playing the computer game or whatever it is that uses this
15 class.

16 Q. So what happens on compilation?

17 A. So this, the Java compiler from Oracle, compiles this into
18 Java bytecode. And the dx tool produces Dalvik bytecode from
19 that.

20 Q. And how does it translate into the instructions and the --

21 A. See, if we're talking about IGET, let me just tell you
22 about the IGET that comes out of this. The instance field "y"
23 is used here, and the program has to get this instance field
24 value in order to add one to it. So this particular part of it
25 can turn into some IGET.

1 I feel like I'm not drawing big enough, but there is
2 only so much space here.

3 And this has some arguments, the "vA" and "vB" that
4 we talked about, but the thing that matters here is it has --
5 the third thing is a "field@" -- let me just draw a "01." You
6 could also write "0001," but if you put a bunch of zeroes in
7 front of a number, it's still the same number.

8 Q. What's the relationship between the "y" in the source code
9 program and that "field@01"?

10 A. "Field@01" is really the Dalvik instruction's version of
11 this field named "y" (indicating). So everywhere in the
12 program that used "y," that the programmer wrote "y," the
13 compiler and the dx tool turned that into "field 01." So this
14 is really the symbolic name reference "field 01" in the
15 bytecode program corresponding to the programmer's favorite
16 name here "y," for the "x" "y" coordinate of a point.

17 Q. So, so far we have been talking about a source code
18 program and running it through a compiler in the dx tool?

19 A. Right.

20 Q. What happens now when it's actually located -- loaded onto
21 a virtual machine on an Android phone?

22 A. Right. So the class by itself is designed to be used by
23 another program that creates points and moves them around on
24 the screen and draws it, et cetera, does stuff like that. So
25 as that executes, another piece of code will call the

1 instructor for point and create an instance object.

2 So there is actually going to be a data object over
3 here created (indicating), and there might be more in this than
4 "x" and "y" methods. But just to put these in here, let's
5 suppose we have a point to match the other examples. And I
6 won't confuse you by changing things too much at "23" and "17."
7 So if you want it right here (indicating), would have "23" and
8 "17" in the actual data object created by the program that
9 runs.

10 And then I believe Mr. McFadden had some offsets for
11 these that was "48" here. I will try to use the same thing
12 just to make it simple, try not to change too much. So "x"
13 might be before that at "47."

14 Q. So now let's go back to the IGET instruction --

15 A. Okay.

16 Q. (Continuing) -- with OpCode 52.

17 How does that relate to our -- to loading the program
18 and executing it?

19 A. So this shows the execution of this IGET instruction. So
20 this is IGET. That's its OpCode. And this is the field
21 (indicating). Write it that way "field@01" to show you what's
22 going on.

23 Q. Does the reference "01" -- so you regard "01" as a
24 symbolic or numeric reference?

25 A. Symbolic reference.

1 Q. All right. Does the symbolic reference "01" need to be
2 resolved to execute the IGET instruction?

3 A. Right. What the programmer wrote is get the value over
4 here to this object, add one to it, and do something else with
5 it.

6 So in order for that to happen, we have to find where
7 that actual data is in the object using this symbolic
8 reference. So the symbolic reference is resolved. There are a
9 number of steps here. You've heard it three or four times, so
10 let me save you the trouble of going through it.

11 There is a process that looks up information here and
12 then does some kind of a search. There was an animation of a
13 linear search. Let's skip all that.

14 But ultimately what's found as the resolution of this
15 symbolic reference is this actual numerical reference, actual
16 numeric location "48." So when that happens, that finishes,
17 there is a little structure built in memory here that has a few
18 parts. But the important part for us is it ends up with that
19 memory location "48" in it. And that's what's used by the
20 Dalvik Virtual Machine to then get this data value and operate
21 on it and continue execution of the program.

22 Q. So what does the Dalvik Virtual Machine do with the memory
23 location after determining it?

24 MR. JACOBS: And maybe we could have the claim
25 language up, Claim 11?

1 (Document displayed)

2 **A.** So it obtains the data, "17," according to this numerical
3 reference, "48."

4 **BY MR. JACOBS:**

5 **Q.** And then what happens as a result of -- of the patented
6 technique of -- that makes things more efficient? What happens
7 next time around?

8 **A.** So, the first time around this is resolved, and the
9 numerical reference is stored. And then the next time this
10 instruction gets executed, the virtual machine looks in this
11 table to see, Do I need to go through this whole search process
12 again? That was expensive. Took a few steps. Took a bunch of
13 our time to try to understand it. Answer, no, because it's
14 already stored here, so you can just read it right off here.

15 That works for this particular instruction, and any
16 other one that uses the same symbolic reference "Field 01" in
17 it. So everything speeds up because you've stored the result
18 of this process.

19 **Q.** So let's go over -- now that you've done that, let's go
20 over the definition of symbolic reference again. And dynamic
21 is not disputed for Resolve.c, so you can just focus on the
22 rest of the language.

23 **A.** Right. So I could write it out or just summarize it, but
24 basically you have a reference. I will just do it because I
25 want to fill it in here.

1 So it's a reference that identifies data, all right?
2 So this is a reference. It identifies data "17" by name. And
3 then the last part is other than the numeric location of the
4 data. Okay?

5 **Q.** And so fill in the -- how do you fill in the parentheses
6 now?

7 **A.** Okay. So the data, this is "17." Should be clear, that's
8 where our point is. The name is this symbolic reference "01."
9 And the numeric location -- I left out memory. Numeric memory
10 location is "48" of the data. So the big complicated thing
11 here is "01" not equal to "48."

12 **Q.** And what does that prove?

13 **A.** That the name "01" is a name other than the numeric memory
14 location of the data.

15 **Q.** And, therefore, within the meaning of the claims, it's
16 a --

17 **A.** It's a symbolic reference, not a numeric reference. If it
18 was a numeric reference, it wrote just be "48."

19 **Q.** Let's do this one more time.

20 Maybe leave this poster up, but can you just explain
21 what would happen with dexopt as opposed to Resolve.c.

22 **A.** In dexopt the resolution process basically is saying,
23 you're using the same Dalvik VM code of an instance of that
24 executing.

25 The difference is this IGET instruction gets

1 rewritten and the symbolic name gets rewritten to a numeric
2 reference. So the "IGET 52" would become, I think "242" is the
3 OpCode for a quick version of IGET. And the quick version of
4 IGET requires as an operand the numeric memory location rather
5 than the symbolic reference. So we would rewrite "01" to "48."

6 **Q.** And is there any difference in characterizing "01"
7 under -- in Resolve.c in terms of whether it symbolically
8 refers, as opposed to numerically refers, when talking about
9 dexopt?

10 **A.** It's the same dex file. It comes from the same source
11 program. It's executed in the same way. All the references
12 have the same meaning, whether dexopt is optimizing them or
13 they are run through this process implemented in Resolve.c.

14 **Q.** And in dexopt is it your opinion that that is done
15 dynamically?

16 **A.** Yes. It's the dynamic process of going through all this
17 chasing these links and searching and so on.

18 It's also dynamic as a portion of the Dalvik Virtual
19 Machine and through dexopt.

20 In the case of things like classes loaded into
21 memory, things are resolved. The memory location of the class
22 depends on the runtime environment, what code has been loaded
23 and so on. So it's all dependent on information that is known
24 at runtime and not known independent of the platform or the
25 code or the version of things that are loaded.

1 Q. Explain that last point one more time.

2 You're talking about the runtime versus independent
3 of the platform?

4 A. So, if you and I had different phones and we had different
5 versions of the software, resided in different places, things
6 such as a class name "resolve by dexopt" would resolve the
7 different locations on our two phones.

8 Q. Okay. You may return to the stand.

9 (Witness resumes stand.)

10 MR. JACOBS: Your Honor, I hope to put 1133 on this
11 poster.

12 THE COURT: Now, it's only for illustration, correct?

13 MR. JACOBS: Yes.

14 THE COURT: So it will not go into the jury room. If
15 anybody on the jury thinks they want to copy down anything up
16 there, they should do so. But it will not be in the jury room
17 with you.

18 (Trial Exhibit 1133 marked
19 for identification)

20 MR. JACOBS: And we marked up the poster from
21 Dr. August's exam with 1132.

22 THE COURT: Fine.

23 (Trial Exhibit 1132 marked
24 for identification.)

25 THE WITNESS: I don't have anything against Professor

1 August, but I'm going to not share his water glass.

2 **THE COURT:** We are trying to economize here.

3 (Laughter.)

4 (Brief pause.)

5 **BY MR. JACOBS:**

6 **Q.** Dr. Mitchell, I need to just go over for a minute this
7 question of your first report, and then your reply report, and
8 just clarify for the jury the error that you learned about in
9 the first report in your representation. Do you recall that
10 testimony with Mr. Van Nest?

11 **A.** Yes, I do.

12 **Q.** So which report were you being examined about the first
13 time you were on the stand?

14 **A.** I was being asked simply about my initial report, my --
15 what's called my opening expert report.

16 **Q.** Now, you had a second report that covered '104
17 infringement issues?

18 **A.** Yes, I did.

19 **Q.** And did you write in your second report about whether
20 Dalvik instructions contain symbolic references?

21 **A.** Yes, I did.

22 **Q.** And where did you do that?

23 **A.** I believe it's Paragraph 31, if I remember.

24 **Q.** And what did you assert there about whether Dalvik
25 contained symbolic reference, Dalvik instructions contained

1 symbolic references.

2 **A.** Well, the paragraph goes on for a little bit. Would you
3 like me to just read the last part of that?

4 **Q.** The portion that's relevant to the question of what your
5 opinion is on this question.

6 **A.** Well, the last sentence might be a good place to start, if
7 you like.

8 **Q.** Yes.

9 **A.** (As read)

10 "Moreover, as I explained in my Opening
11 Patent Infringement Report" -- that's the
12 report we talked about earlier -- "the
13 numeric index contained in a dex bytecode
14 instruction may represent a string and, in
15 any event, gets resolved to the actual
16 location of the Method, Field, Class or
17 String being resolved. Where the Court
18 construed "resolving" to mean "at least
19 determining the numerical memory location
20 reference that corresponds to the symbolic
21 reference."

22 **Q.** Now was this report written before or after your
23 deposition in which you were asked about the passage in your
24 opening report?

25 **A.** I think it was written before the deposition.

1 Q. Now, let's talk briefly about the '520 patent.

2 What's your understanding of the main point of
3 argument on this patent between Oracle and Google?

4 A. I think the issue is just whether this process, which
5 everyone seems to understand similarly, is properly called
6 simulation or not.

7 Q. And what's your opinion, sir?

8 A. I believed that it is. I believe the dx tool simulates
9 bytecode in order to perform the steps outlined and described
10 in detail in the '520 patent.

11 Q. And they call it pattern matching?

12 A. Yes.

13 Q. How does that bear on the question of whether it's
14 simulation?

15 A. I don't really see the issue there. It's possible for
16 someone to do pattern matching as a portion of simulation. So
17 simply labeling it as pattern matching is not contradictory to
18 it also being simulation.

19 I think as I read the code and I understand how it
20 proceeds, the process is properly called simulation. Google
21 engineers called it simulation. Seems like a good description
22 to me.

23 Q. Then there was testimony about the fact that in Android
24 there is no stack operations. What's the relevance of that to
25 whether Android simulates for purposes of the '520 patent?

1 A. I don't really see why stack is required. A simulation of
2 a program isn't true execution of the program. We know that to
3 execute Java bytecodes properly, it's normal to use a stack.
4 But simulation is not full execution. It's something simpler.
5 And if it's possible to simulate more simply without using a
6 stack, that's perfectly fine. It's more efficient. The
7 simulation uses an array to keep track of things and that looks
8 just fine. Looks like a good simulation to me.

9 Q. So, notwithstanding Google's argument that it uses in its
10 simulation routine some form of pattern matching, what is your
11 opinion whether the '520 patent is infringed?

12 A. I believe it's infringed. I believe the implementation of
13 the dx tool meets all of the limitations of the asserted
14 claims.

15 Q. Thank you, Dr. Mitchell.

16 THE COURT: Cross examination.

17 CROSS EXAMINATION

18 BY MR. VAN NEST:

19 Q. Good morning, Dr. Mitchell.

20 A. Good morning.

21 Q. I take it between your first report and your second report
22 you had access to additional information in connection with the
23 case?

24 A. That may be. I had many months and kept looking at more
25 things. And I don't recall what I might have had access to

1 between one and the other, but it's possible that I did.

2 Q. As a matter of fact, after your first report, you received
3 the entirety of Dr. August's report, correct?

4 A. Yes.

5 Q. And so before you wrote your reply report, that you called
6 your second report here in discussion with Mr. Jacobs, you had
7 access to all of what Dr. August's opinions were, right?

8 A. No.

9 Q. Well, you had his report?

10 A. Yes.

11 Q. You reviewed his report?

12 A. Yes.

13 Q. You saw what his report said?

14 A. Yes.

15 Q. And so the second report that you told Mr. Jacobs about,
16 that was written only after you had reviewed Dr. August's
17 report, correct?

18 A. I believe so, yes.

19 Q. Now, we've seen quite a bit of this exhibit this morning,
20 but I want to spend just a little bit more time on it.

21 I take it you have previously said that this operand
22 here is in the instructions, right?

23 A. Yes.

24 Q. And I think you said last week, and again today, you
25 identified that as an index.

1 A. Yes. It's field index.

2 Q. So it's an index into the Field table, which is set forth
3 right here in the middle of the slide (indicating), correct?

4 A. Yes. A simplified version of it is illustrated there.

5 Q. And it's a reference to a location in the Field table,
6 right?

7 A. It's an index to that array, yes.

8 Q. In other words, the one that refers to a location in the
9 Field ID table, right?

10 A. No.

11 Q. This is an index (indicating). This "01" in the
12 instructions is an index to the Field table, correct?

13 A. Yes.

14 Q. And the "01" is referring to a lotion in the Field ID
15 table?

16 A. Yes.

17 Q. Now, you talked also last week about class indexes in the
18 instructions, correct?

19 A. Yes.

20 Q. And a class index, that's also an index into a table?

21 A. Yes.

22 Q. It works in much the same way as this field index we just
23 saw works, correct?

24 A. Yes.

25 Q. You also talked last week about a method index, correct?

1 A. Yes.

2 Q. And a method index, that's an index into a Method table,
3 right?

4 A. Yes.

5 Q. Now, that works in much the same way as the class index
6 and field index, correct?

7 A. Yes, fundamentally.

8 Q. The operand that is used provides a location in either the
9 Field table or the Class table or the Method table, right?

10 A. Yes.

11 Q. I think you talked last week about a string index. String
12 index being in instructions, correct?

13 A. Yes.

14 Q. And a string index, that's also an index to a location in
15 a string table, such as the string table here on Mr. McFadden's
16 exhibit; correct?

17 A. Yes.

18 Q. So those are all indexes to locations in tables, right?

19 A. Yes.

20 Q. Now, in your opening report you repeatedly referred to
21 these indexes in the instructions as numerical references,
22 correct?

23 A. The only example I can think of that is the paragraph and
24 paragraphs that we talked about before that I have explained
25 here and in my deposition contain an error that I've corrected.

1 Q. Have you looked carefully through your report since you
2 were here last week?

3 A. Moderately.

4 Q. Did you go back to check to see whether in a number of
5 different paragraphs you used the words "numerical reference"
6 to refer to indexes like the field index and the class index?
7 Did you do that since you were here on Friday?

8 A. Not at great length, no.

9 MR. VAN NEST: So could we put up Paragraph 269 from
10 Dr. Mitchell's first report?

11 (Document displayed)

12 BY MR. VAN NEST:

13 Q. So we have Paragraph 269 for your on the screen for you,
14 Dr. Mitchell?

15 A. Yes.

16 Q. And this is the one we talked about last week in which you
17 conceded that in your first report, before you had seen Dr.
18 August's opinion, you referred to "class indexes" as "numerical
19 references."

20 MR. VAN NEST: Can we underline that, please?

21 (Document underlined)

22 BY MR. VAN NEST:

23 Q. Right?

24 A. I'm not sure what you're asking. The sentence says
25 exactly what it says here.

1 Q. Okay. And the sentence, as we established last week,
2 refers to class indexes as numerical references, right?

3 A. It can be understood that way, yes.

4 Q. And you're now -- you've now testified that was just a
5 mistake, right?

6 A. Yes.

7 MR. VAN NEST: Could we have Paragraph 272?

8 (Document displayed)

9 BY MR. VAN NEST:

10 Q. Is Paragraph 272 a paragraph in your report, a few
11 paragraphs below the one we just looked at?

12 Could we underline "numerical references (methodRef
13 or methodIdx)."

14 MR. VAN NEST: Can we underline that?

15 (Document underlined.)

16 BY MR. VAN NEST:

17 Q. This is something you wrote in your first report before
18 you saw Dr. August's opinions, correct?

19 A. Yes. I believe that is the paragraph you asked me about
20 before.

21 Q. And this is another paragraph in which you referred to an
22 "index" as a "numerical reference," correct?

23 A. Well, there's "methodRef" and "methodIdx." That's two
24 different things here.

25 Q. Well, "methodIdx" -- we established last week "methodIdx,"

1 that means method index, right?

2 A. Yes.

3 Q. And you referred to that in your report as a "numerical
4 reference," right?

5 A. Apparently, yes.

6 Q. And that's also a reference in instructions?

7 A. Yes.

8 Q. So that's a second example of looking at the instructions
9 in the Dalvik bytecode and an index and calling it a "numerical
10 reference," right?

11 A. Yes.

12 Q. Now, is that a mistake, also?

13 A. Yes.

14 Q. Let's go on to Paragraph 293.

15 (Document displayed)

16 Q. Paragraph 293, again, was written in your original report
17 before you saw any of the opinions from Dr. August, correct?

18 A. That is correct, about the time.

19 Q. And can we underline in the second line "numerical
20 references string Idx."

21 You wrote that, Dr. Mitchell, right?

22 A. Yes, yes.

23 Q. And "string Idx" in this particular example, that's
24 actually in the Dalvik bytecode instructions, correct?

25 A. Yes.

1 Q. So this is yet a third example of an index found in the
2 Dalvik bytecode instructions that you called a numerical
3 reference in your report?

4 A. It's basically the same example.

5 Q. Well, we have now established that you called a class
6 index a numerical reference, a method index a numerical
7 reference, a string index a numerical reference; and all three
8 of those are found in the instructions in Dalvik, right?

9 A. Yes.

10 Q. Now, you also in your report traced through some of the
11 same operations that Mr. McFadden did in this exhibit --

12 MR. VAN NEST: Which, your Honor, I apologize. We
13 have now marked Trial Exhibit 3547.

14 (Trial Exhibit 3547 marked
15 for identification)

16 BY MR. VAN NEST:

17 Q. (Continuing) -- right?

18 A. I'm sorry. I've lost the question.

19 Q. I'm sorry, Dr. Mitchell. That's my fault.

20 Your report looked not only at indexes in
21 instructions -- in other words, over here on the left -- but it
22 looked at references contained in tables like the Field table,
23 the String table, and String Data table. You looked at those,
24 too, correct?

25 A. Yeah, my report covers the operation of the Dalvik Virtual

1 Machine and Resolve.c.

2 Q. And almost every time that you saw an index like the
3 indexes that are in the Dalvik instructions, you called it a
4 "numerical reference;" right, Dr. Mitchell?

5 A. I don't recall that.

6 Q. Let's go to Paragraph 284.

7 (Document displayed)

8 Q. 284 is a paragraph in your opening report; correct, Dr.
9 Mitchell?

10 A. Yes.

11 Q. And could we underline on the third line of the page
12 there, "Numerical reference (Field ID with specified index)."

13 Do you see that language, sir?

14 A. Yes.

15 Q. That's another example of you're referring to a "field
16 index" as a "numerical reference," correct?

17 A. No. This is something different.

18 Q. Now, Field ID, that means something other than index?

19 A. Yes. ID and Idx are two different things in the source
20 code.

21 Q. What's the specified index you're referring to there?

22 A. If you look at the -- if I remember correctly, this or
23 another paragraph like this is followed by code that contains a
24 comment, Field ID with a specified index. And that explains
25 what this means.

1 Q. You certainly would agree with me that someone reading
2 this could take away from it that you were referring to a
3 Field ID with specified index as a numerical reference, right?

4 A. That's -- could be one reading. What I meant is "Field ID
5 comma" would be another way of separating it, with the
6 specified index. The Field ID comes from an index and the
7 Field ID is a pointer into the Dalvik Virtual Machine.

8 Q. So you should have put a comma after "Field ID"?

9 A. Apparently that would have clarified it, but I don't think
10 it's wrong as it is.

11 Q. But someone reading it could certainly assume that you
12 called the field index a numerical reference in Paragraph 284,
13 right?

14 A. No. This is Field ID, not Field Idx.

15 Q. But the specified index, that's a field index?

16 A. I believe there is an index that's an input to the method
17 that this is referring to. That's separate from the Field ID.

18 Q. Now, you used the term "numerical reference" to refer to
19 method ID with specified index, correct?

20 A. That may be.

21 Q. And here you used "numerical reference" to refer to
22 Field Id with specified index, correct?

23 A. Yes, as we've discussed.

24 Q. Can you think of any example anywhere in your report where
25 you called an index anything other than a "numerical

1 reference"?

2 **A.** I believe there are some paragraphs, yes.

3 **Q.** Now, the testimony that you gave last week and this week
4 and the information that Mr. Jacobs reviewed with you in your
5 report, you would agree with me, Dr. Mitchell, all of that was
6 done only after you had a chance to review, read, study and
7 analyze Dr. August's report, right?

8 **A.** After. I'm not sure what you mean by "only," but
9 temporally, yes.

10 **Q.** I guess my question was: The changes that you made -- in
11 other words, calling an index a symbolic reference -- that
12 didn't happen until after you had reviewed Dr. August's report
13 and analyzed it?

14 **A.** No. That's not my recollection of this.

15 **THE COURT:** Do we have the date of the two reports,
16 Dr. August's report and of the reply report?

17 **MR. VAN NEST:** We do, your Honor.

18 **THE COURT:** Well --

19 **MR. VAN NEST:** I don't think there is a dispute about
20 that. I think -- I think the witness has acknowledged.

21 **BY MR. VAN NEST:**

22 **Q.** You wrote your reply report after you saw Dr. August,
23 report?

24 **A.** Yes.

25 **Q.** So your opening report, that's before you saw Dr. August's

1 report, correct?

2 A. Yes.

3 Q. Then you saw Dr. August's report?

4 A. Yes.

5 Q. And then you wrote your reply report after you saw Dr.
6 August's report?

7 A. Yes.

8 Q. Okay.

9 MR. VAN NEST: Thank you, your Honor, for clearing
10 that up.

11 Could we put Slide 4 up from Dr. Mitchell's testimony
12 last week?

13 THE COURT: We're going to take a break after you
14 finish Slide 4, but let's finish slide four.

15 MR. VAN NEST: It may take a few minutes, your Honor,
16 but I'm happy to go either way.

17 (Document displayed)

18 BY MR. VAN NEST:

19 Q. This is Slide 4. This is one of the slide you showed the
20 jury on Friday?

21 A. Yes.

22 Q. Actually, I think it was Thursday.

23 A. Whatever it is...

24 Q. In this example the word "Test 1" in the top, that's in
25 the Java source code that's written by the program developer,

1 right?

2 A. Yeah. Actually, this is source code that I wrote.

3 Q. So you wrote that. That's the equivalent of what a
4 programmer would write in creating a program, right?

5 A. A programmer could. I did.

6 Q. And "Test 1," you considered that -- you've highlighted
7 that. That you consider a symbolic reference?

8 A. Well, it's a source code symbolic name.

9 Q. But that's what you were identifying as a symbolic
10 reference last week, wasn't it?

11 A. Could be.

12 Q. Could be or was?

13 A. I don't recall exactly what I said. It's a symbolic name
14 chosen by a programmer to be meaningful and memorable and make
15 it easy to write code.

16 Q. Okay. And then that symbolic name as part of the source
17 code is compiled by a Java compiler into the Java bytecode
18 that's in the middle of the picture, right?

19 A. Yes.

20 Q. Now, you said on your examination Java compiler from
21 Oracle, but lots of people make Java compilers, right?

22 A. I don't recall all of them, but it's possible for other
23 companies to make --

24 Q. Doesn't IBM make one?

25 A. They may.

1 Q. Doesn't GNU make one?

2 A. There is a GNU Java compiler. I believe so.

3 Q. So this is no -- there is no limitation on the Java
4 compiler. Anybody can build and use a Java compiler, right?

5 A. I don't know what the legal status is, but I know there
6 exists other compilers than the ones you've mentioned, for
7 example.

8 Q. So the "Test 1" in the Java bytecode, that's a symbolic
9 reference as you've shown it here in the Java bytecode,
10 correct?

11 A. I'm not sure what you mean.

12 Q. Well, it symbolizes "Hello World," right? It's a symbolic
13 reference to "Hello World"?

14 A. What are you referring to in this --

15 Q. Once the source code has been compiled into Java bytecode,
16 "Test 1" is still there and it's a symbolic name for "Hello
17 World," right?

18 A. Not this occurrence.

19 Q. What is it?

20 A. A comment.

21 Q. It's a what?

22 A. Comment.

23 Q. Well, is "Test 1" a symbolic reference in your example
24 here or not?

25 MR. JACOBS: The question is really quite vague.

1 A. I don't think what you're asking makes -- I don't
2 understand how you are asking this.

3 BY MR. VAN NEST:

4 Q. Well, let's go to the -- then, I take it, the Java
5 bytecode that's compiled into Android dex code, that's at the
6 they bottom, right?

7 A. Transformed.

8 Q. Transformed. Well, it's run through the dx tool and it
9 becomes Dalvik code, right?

10 A. Yes.

11 Q. It becomes a dex file, correct?

12 A. Yes.

13 Q. And that's what you're illustrating here. You're showing
14 the dx tool in the middle and Android dex code at the bottom,
15 right?

16 A. Yes.

17 Q. And "Test 1" is still there?

18 A. Yes.

19 Q. Is "Test 1" a symbolic reference in this example or not?

20 A. Not right here, I don't think.

21 Q. What is it?

22 A. I mean, that's a part -- what is it? It's comment,
23 annotation.

24 Q. Now, in the bottom here you actually have a series of
25 indexes there on the left, right? "0000" that's an index into

1 the Field table, correct?

2 A. No.

3 Q. What is it?

4 A. It's a class index.

5 Q. Okay. It's an index into the Class field, right?

6 A. Yes.

7 Q. Is that in the instructions?

8 A. This is in the FieldIds array.

9 Q. So it's not in the instructions.

10 A. Could you clarify?

11 Q. Well, I'm asking you. Is the class index reference there
12 on the left, is that in the bytecode instructions or is it just
13 in the dex file?

14 A. Depends how you define that. This is not an insns. It is
15 in FieldIds as the slide shows.

16 Q. So this slide really isn't intended to reference symbolic
17 references, numeric references. This is a general description
18 of the compilation of code from source code to Java bytecode to
19 Dalvik bytecode, correct?

20 A. No.

21 Q. Are you illustrating something here with respect to
22 numeric references and symbolic references, Dr. Mitchell, or
23 not?

24 A. Yes. This is a portion of an illustration of that.

25 Q. All right. Where is the symbolic reference in this

1 picture?

2 A. Another 0.

3 Q. Another 0?

4 A. Yes.

5 Q. Is that what you said?

6 A. Yes.

7 Q. So the symbolic reference, is that the 0 next to "Hello
8 World!"?

9 A. That is an indication that this is -- this is field@0000

10 Q. All right. So field@0000, that's an index, correct?

11 A. Yes.

12 Q. It's an index into the field ID table --

13 A. Yes.

14 Q. -- right?

15 It's a location in the field ID table where data may
16 be stored, right?

17 A. No.

18 Q. Well, put it this way: Field@0000 is a location in a
19 field table just like all the other indexes we looked at this
20 morning, right?

21 A. Yes.

22 MR. VAN NEST: This would be a good time to break,
23 Your Honor.

24 THE COURT: Fifteen minutes. Remember the
25 admonition, please.

1 (Jury out at 11:32 a.m.)

2 **THE COURT:** Be seated. Any issues for the Court?

3 **MR. VAN NEST:** I don't believe we have any, Your
4 Honor.

5 **MR. JACOBS:** No, Your Honor.

6 (Recess taken from 11:32 to 11:47 a.m.)

7 **THE COURT:** We've got to finish this today.

8 **MR. VAN NEST:** Oh, we will.

9 **THE COURT:** We have an hour and ten minutes.

10 **MR. VAN NEST:** We will.

11 **THE COURT:** We must finish this today. I'm going to
12 bring the jury in. Are you ready?

13 **MR. VAN NEST:** I'm on track for the same thing.

14 **THE COURT:** We need a witness and the jury.

15 **MR. VAN NEST:** Our witness isn't here.

16 **MR. NORTON:** Here he comes, Your Honor.

17 **THE COURT:** We're ready.

18 **THE CLERK:** All rise.

19 (Jury enters at 11:48 a.m.)

20 **THE COURT:** Welcome back and please be seated.

21 Please, go ahead.

22 **MR. VAN NEST:** Thank you, Your Honor.

23 **BY MR. VAN NEST:**

24 **Q.** Dr. Mitchell, I want to review just one or two more
25 paragraphs of your opening report.

1 Is it the case that some of the references that you
2 analyzed in your opening report were references not in
3 instructions but found elsewhere, in other tables?

4 **A.** Could be. I don't recall specifically.

5 **Q.** All right. Did you analyze the field ID and specified
6 index in tables -- in places other than in the instructions?

7 **A.** Uhm, I believe so.

8 **MR. VAN NEST:** And could we have paragraph 289 up,
9 please.

10 (Document displayed.)

11 **BY MR. VAN NEST:**

12 **Q.** This is a paragraph we didn't look at before the break.
13 Is this an example --

14 **MR. VAN NEST:** Could we underline in the third line:
15 "... the numerical reference (FieldId with
16 the specified index)."

17 **BY MR. VAN NEST:**

18 **Q.** Is this an example of you're analyzing a field ID with
19 specified index outside the dex code instructions?

20 **A.** I'm not quite sure what you're asking.

21 **Q.** Well, you're analyzing "fieldId with specified index,"
22 correct?

23 **A.** I believe "fieldId with specified index" is a comment in
24 the code.

25 **Q.** And you're referring to that as a numerical reference here

1 in paragraph 289?

2 A. I believe this is referring to "fieldId" as a numerical
3 reference, yes.

4 Q. And "with specified index" is that a mistake to have that
5 in the paren, or you should have had a comma, or what?

6 A. I think this is similar to the previous sentence in which
7 I suggested a comma. On the other hand, it is a direct quote
8 from the code, which is what it is referring to.

9 Q. But you referred to it as a numerical reference, not a
10 symbolic reference, right?

11 A. I'm not sure what you mean by "it" there.

12 Q. "FieldId with the specified index." You referred to that
13 as a numerical reference, correct?

14 A. No.

15 Q. What are you referring to as a numerical reference, just
16 the fieldId?

17 A. Yes.

18 Q. You intended to leave "the specified index" out of the
19 paren altogether?

20 A. No.

21 Q. Could someone read that as a reference to fieldId with
22 specified index as a numerical reference, Dr. Mitchell?

23 A. Maybe, if he didn't look at the code or the rest of the
24 report.

25 Q. Now, you also did this with respect to the method ID,

1 paragraph 273.

2 **MR. VAN NEST:** Could we have that up, please. I'm
3 sorry, paragraph 273.

4 (Document displayed.)

5 **BY MR. VAN NEST:**

6 **Q.** This is another paragraph in your opening report,
7 Dr. Mitchell?

8 **A.** I think so.

9 **Q.** Again, here is the bottom of the page.

10 **MR. VAN NEST:** That's right. Could we underline "the
11 numerical reference (MethodID with specified index)."

12 **Q.** Same thing here. You're referring to, in the paren,
13 "MethodID with specified index" as a numerical reference,
14 correct?

15 **A.** No.

16 **Q.** Could someone read that as a reference to MethodID with
17 specified index as a numerical reference?

18 **MR. JACOBS:** Your Honor, this is about the fifth time
19 that this call-for-speculation question has been asked. I
20 object.

21 **THE COURT:** Overruled. Please answer.

22 **THE WITNESS:** I suppose someone could. It's not what
23 I meant.

24 **BY MR. VAN NEST:**

25 **Q.** And you did the same thing again, in paragraph 279.

1 Correct? Let's take a look paragraph 279.

2 **A.** I don't recall. But if you show it to me and that's what
3 it says, that's what it says.

4 **Q.** Let's take a look at paragraph 279.

5 (Document displayed.)

6 **MR. VAN NEST:** There it is. Can we bring it up.

7 **BY MR. VAN NEST:**

8 **Q.** Again, there we see the same language, Dr. Mitchell:

9 "... the numerical reference (MethodID with
10 specified index)."

11 Correct?

12 **A.** That's the same language, yes.

13 **Q.** Let's turn, briefly, to the '520 Patent.

14 **MR. VAN NEST:** And could we put the claim up on the
15 screen. This is on our juror's handout, with Claim 1.

16 (Document displayed.)

17 **BY MR. VAN NEST:**

18 **Q.** So this is a method claim, is it, Dr. Mitchell?

19 **A.** Yes.

20 **Q.** It's a method. And in analyzing a method claim, in order
21 to establish infringement, the accused code must perform each
22 step in the method, correct?

23 **A.** Yes.

24 **Q.** So it's -- it's not enough to show, for example, that with
25 the same input you'd get the same output from a piece of code.

1 You have to show that every step in the method outlined here in
2 Claim 1 is actually being performed by the code in dx tool,
3 right?

4 A. Yes. Or in some way by the system that's being accused.

5 Q. All right. And what you're accusing is the dx tool,
6 right, code inside the dx tool?

7 A. I believe that's a portion of it. But I'm not sure that's
8 the whole thing.

9 Q. And the disputed limitation is "simulating execution of
10 the bytecodes of the clinit method against a memory," et
11 cetera, correct?

12 A. Yes.

13 Q. Now, I think you said last week and again this morning
14 that you understand that in the dx tool there is pattern
15 matching going on. Right?

16 A. There's a portion of the code that has a comment referring
17 to a pattern. So matching in that sense.

18 Q. Okay. And you've looked at the code --

19 A. Yes.

20 Q. -- correct?

21 Fair to characterize the executable code as pattern
22 matching?

23 A. Not -- not exactly.

24 Q. There are patterns that appear in the dex bytecode that's
25 being analyzed, correct?

1 A. Uhm, there is a repeating pattern of four instructions.

2 Q. Right.

3 MR. VAN NEST: Could we have Dr. Mitchell's revised
4 slide 55 up, please.

5 (Document displayed.)

6 BY MR. VAN NEST:

7 Q. This is a slide I think you showed us last week,
8 Dr. Mitchell. Is that right?

9 A. Yes.

10 Q. And this is illustrating bytecode in -- being executed --
11 or pre-execution?

12 A. I knew just simply bytecode.

13 MR. VAN NEST: And could we highlight lines 3 through
14 6, just those four. And pull that -- I guess can we make it
15 bigger or no?

16 (Document displayed.)

17 BY MR. VAN NEST:

18 Q. Is this the pattern you were referring to? Dup, iconst_0,
19 iconst_1, iastore, is that the pattern you mentioned a minute
20 ago?

21 A. Not literally.

22 Q. Excuse me?

23 A. Not literally.

24 Q. Is it a pattern?

25 A. This actually is not a very good pattern.

1 Q. Well, it's a repeating sequence, isn't it? Doesn't it
2 repeat throughout this particular exhibit?

3 A. No.

4 MR. VAN NEST: Could we show lines 7 through 10.

5 (Document displayed.)

6 BY MR. VAN NEST:

7 Q. We have another example of dup, iconst. Here it's
8 iconst_1, iconst_2, and iastore.

9 Is that a sequence like the sequence we just looked
10 at?

11 A. It's like. It's not the same bytecode, which is what I
12 understood you to mean. It's not the same instructions, not
13 the same opcodes.

14 Q. But it appears to be a repeating sequence, like the one we
15 just saw, that starts with dup, iconst, iconst and iastore,
16 correct?

17 A. At that level of description, yes.

18 Q. And this same sequence appears several other times just
19 within slide 55, right?

20 11 through 14 is an example. 15 through 18 is an
21 example. Correct?

22 A. Yeah, I think iconst only goes up to 5, so it's not going
23 to repeat too much.

24 Q. But this is certainly subject to pattern matching, right?

25 A. I'm not sure what you mean.

1 Q. Could be analyzed using pattern matching; couldn't it?

2 A. Potentially.

3 Q. Now, in a Java bytecode system, instructions operate by
4 pushing and popping and replacing values from the top of an
5 operand stack; don't they?

6 A. Yes.

7 Q. Okay. And in the dx tool, there is a file called
8 "simulator," that you spent quite a bit of time talking about,
9 correct?

10 A. Yes.

11 MR. VAN NEST: Can I approach the witness, Your
12 Honor, with Trial Exhibit 46.16?

13 BY MR. VAN NEST:

14 Q. Is that the simulator code that you were referencing last
15 week?

16 (Document displayed.)

17 A. Yes, looks like it.

18 Q. All right. So this is the class within the dx tool that
19 is the simulator class that you've been discussing as
20 simulation, right?

21 A. Yes.

22 Q. And this instruction or this set of code does refer in the
23 executable code to getting the stack, right? If you look at
24 line 227.

25 MR. VAN NEST: Could I have 46.16, at line 227,

1 please.

2 (Document displayed.)

3 **BY MR. VAN NEST:**

4 **Q.** There's references in the code itself to get the stack.

5 Do you see that reference there?

6 **A.** Yes.

7 **Q.** And there are a number references, for example, line 234,
8 line 232, where the code itself talks about getting the stack.

9 **A.** There's a stack here, yes.

10 **Q.** And that's consistent with how a Java compiler executes
11 bytecode, right?

12 **A.** No.

13 **Q.** Here, you're getting the stack and using the stack?

14 **A.** Is that a question?

15 **Q.** Yes, sir.

16 **A.** What are you asking?

17 **Q.** Well, let me put it this way: Throughout the code for the
18 simulator class there are references to getting the stack, as
19 we see here in line 227 and line 234, right?

20 **A.** Yes.

21 **Q.** And there are references, for example, line 233, to
22 popping?

23 **MR. VAN NEST:** Could we highlight line 233.

24 **Q.** To popping, right?

25 **A.** The pop there is not directly applied to the stack. At

1 least not literally in the code.

2 Q. Now, you've looked through the code in the method called
3 "parseNewarray" in the dx tool, correct?

4 A. Yes.

5 Q. That's one of the methods you accuse of infringing the
6 '520 Patent, right?

7 A. I believe it's called by simulate, and then that's --

8 Q. But it's in a different -- as we established last week,
9 it's in a different class?

10 MR. JACOBS: I'm sorry, Your Honor. Dr. Mitchell is
11 being over-spoken by Google's counsel.

12 MR. VAN NEST: I'm sorry.

13 THE COURT: Yes. He had not finished his answer.
14 Do you want to finish your answer?

15 THE WITNESS: I don't recall what I didn't finish.

16 THE COURT: All right. Next question.

17 BY MR. VAN NEST:

18 Q. The parseNewarray is in a completely different class from
19 the simulator class that you have in front of you on the stand,
20 correct?

21 A. Yes.

22 Q. And it's a different set of code from the code in the
23 simulator class, right?

24 A. Different file, different code, yes.

25 Q. Different file, different code.

1 And you've analyzed that code, as well, correct?

2 A. Yes.

3 Q. That code is in Trial Exhibit 46.17, right?

4 A. Maybe.

5 MR. VAN NEST: May I approach the witness, Your
6 Honor?

7 THE COURT: Yes.

8 BY MR. VAN NEST:

9 Q. That is the code for parseNewarray in a different class
10 from the simulator class, right?

11 Just for the record, Dr. Mitchell, this is, I
12 believe, TX 46.17.

13 A. Yes.

14 Q. So that's a different set of code in a different file,
15 which is called "parseNewarray" --

16 A. Yes.

17 Q. -- correct?

18 Now, in the executable code in that file, there is no
19 reference to getting a stack; is there?

20 A. You mean source code?

21 Q. In the executable source code. Not in the comments.

22 There's no reference to getting a stack or popping or
23 pushing anywhere in 46.17; is there?

24 A. I don't see it, no.

25 Q. And, in fact, it's a completely different set of code than

1 the code you identified in simulator class, TX 46.16?

2 **A.** Yeah, sure. You have two different files of code. One
3 calls the other, but they are different files.

4 **Q.** Now, have you been able to determine whether any other
5 file in the dx tool calls the parseNewarray?

6 **A.** Uhm, I think you asked me that before. It wasn't part of
7 my -- I didn't see that as important to look into.

8 **Q.** So you can't tell us whether any other class, including
9 classes that don't have anything to do with simulation, call on
10 parseNewarray as part of their operation; is that right?

11 **A.** I didn't look into classes that don't do simulation. But,
12 I understand there may be other calls to this code.

13 **Q.** And you understand there may be other calls to this code
14 from classes that have nothing, whatsoever, to do with
15 simulation, right?

16 **A.** Sure. Could be.

17 **MR. VAN NEST:** I have nothing further, Your Honor.

18 **THE COURT:** Redirect.

19 **REDIRECT EXAMINATION**

20 **BY MR. JACOBS:**

21 **Q.** Professor Mitchell, you were asked about the errors in
22 your report, many of which were covered last week. I'd like to
23 turn you to volume 2 of your report, page 38 to 40.

24 **MR. VAN NEST:** Excuse me, Your Honor. Volume 2, is
25 that the opening report or the reply report?

1 **MR. JACOBS:** The opening report.

2 (Document displayed.)

3 **BY MR. JACOBS:**

4 **Q.** The overview section there, do you see that, Dr. Mitchell,
5 on page 38 of 100, April 1, 2011? Volume 2.

6 **A.** Okay. Is there --

7 **Q.** Exhibit A, 104, supplemental.

8 **A.** Okay. Got it. And which page number, please?

9 **Q.** 38.

10 Now, was this an attachment to your report?

11 **A.** Yes.

12 **Q.** And what were you citing here in order to make your point
13 about what was a symbolic and a numeric reference, under
14 "Overview"?

15 **A.** This citation here is to a source code file, a C file
16 called "ReduceConstants.c." And at the beginning of that file
17 is a description of the basic scheme and setup here.

18 I believe that Mr. McFadden may have written this,
19 and was asked about this earlier.

20 **Q.** And what does it say about what you are classifying as a
21 symbolic or a numerical reference?

22 **THE COURT:** Read it --

23 **THE WITNESS:** Would you like me to read it?

24 **THE COURT:** It's not on the screen.

25 **MR. JACOBS:** Not yet.

1 I'm sorry. Let's put it on there as a prior
2 consistent statement. Do you have it? Can I have the Elmo,
3 please.

4 **THE COURT:** Can the jury see that? All right. Good.
5 Go ahead. Answer the question.

6 **THE WITNESS:** There's a pretty good, long
7 explanation. It covers a number of important points.

8 It talks about the indexes and how they are used.
9 And there's an example of an invoke virtual instruction, which
10 is similar to the IGET in that it contains a symbolic
11 reference. And there's an explanation of how that's resolved
12 here.

13 Would you like me to read part of it, or ask another
14 question?

15 **BY MR. JACOBS:**

16 **Q.** What does this say about what your opinion was in your
17 report, visible to the other side of this lawsuit, about
18 whether -- what was a symbolic reference versus numeric
19 reference (indicating)?

20 **MR. VAN NEST:** Objection. Leading.

21 **THE COURT:** No. It's a "what" question. Overruled.
22 Please answer.

23 **THE WITNESS:** This is -- this is part of my report.
24 This explains clearly that these indexes are symbolic
25 references.

1 BY MR. JACOBS:

2 Q. If we turn now to paragraph 283, of the first volume of
3 your report.

4 (Document displayed.)

5 Q. Why don't you read paragraph 283 aloud, Dr. Mitchell.

6 A. (As read:)

7 "Next, the function 'dvmResolveInstField'
8 determines or resolves symbolic references
9 (instance fields) to numerical references
10 ('pFieldID') and obtains data in accordance
11 to the numerical reference (the field,
12 'resField')."

13 Q. Is that consistent with the opinions you've expressed in
14 this trial about what is a numerical and symbolic reference?

15 A. Yes.

16 Q. And then if you turn to paragraph 252, what does 252 tell
17 us about your opinions at that time, about what was a field
18 index -- what was a symbolic reference versus a numeric
19 reference?

20 A. Yeah, this is correct, and completely in line and similar
21 to what I explained using the poster just an hour or so ago.

22 This says that:

23 "Optimize.c ... resolves the field index in
24 the constant pool to (among other things) a
25 byte offset of the field in the object."

1 That says the field index is a symbolic reference.
2 It's resolved to get a numeric reference. The byte offset in
3 the field in the object.

4 **Q.** Now turn to paragraph 250.

5 **A.** 250 set some context. Maybe I'll just read it, if that's
6 okay.

7 **Q.** Please.

8 **A.** (As read:)

9 "To be clear, Android Optimize.c line 196
10 identifies integer field fetch instructions
11 in a switch statement and Android Optimize.c
12 line 201 shows a decision to change the
13 integer field fetch instruction to the
14 corresponding quick instruction. In this
15 process, a symbolic reference is resolved to
16 a numerical reference."

17 Symbolic reference is the field index. The numerical
18 reference is the actual address inserted in the quick
19 instruction, just as I explained earlier today.

20 **Q.** And that opinion was expressed before or after you
21 received Dr. August's report in this litigation?

22 **A.** This is before, well before that.

23 **MR. JACOBS:** Thank you. No further questions.

24 **THE COURT:** Okay.

25 **MR. VAN NEST:** I have nothing further, Your Honor.

1 **THE COURT:** All right. Thank you, Professor
2 Mitchell. You may step down.

3 **THE WITNESS:** Thank you.

4 **MR. JACOBS:** Your Honor, our rebuttal case, we rest.

5 **THE COURT:** All right. Does Google have any
6 surrebuttal?

7 **MR. VAN NEST:** Could I have just a moment, Your
8 Honor?

9 **THE COURT:** All right.

10 **MR. JACOBS:** While they're talking, Your Honor, are
11 Rule 50 motions reserved?

12 **THE COURT:** We need to discuss that with other
13 counsel.

14 **MR. VAN NEST:** Your Honor, Google rests also.

15 **THE COURT:** All right. We have reached another
16 milestone, which means no more evidence. And that means that
17 you've now heard all the evidence that will be before you for
18 this phase of the case.

19 Now, everything that you learned in the first phase
20 you can use, as well. So it's like 1 plus 1 equals 2. And you
21 can use all of that. But, of course, the overwhelming majority
22 of the evidence that you -- that is directed to this phase has
23 been in this phase.

24 So it's too late to start the closing arguments.
25 We're going to do that first thing in the morning. I'm going

1 to send you home.

2 Please come back, and then I'll give you -- it will
3 be the same drill. I'll give you instructions. Well, I'll do
4 most of it at the end.

5 The lawyers will argue, this time, one hour and 15
6 minutes per side. Plaintiff will get to split its one hour and
7 15 minutes because they have the burden of proof.

8 And then it will go to you, my guess is, by sometime
9 between 11:00 and noon tomorrow, for your deliberations.

10 But, in the meantime, no deliberations. No talking
11 about the case. No homework about the case. Please keep an
12 open mind. We'll see you back here at the normal time. Thank
13 you.

14 **THE CLERK:** All rise.

15 (Jury out at 12:12 p.m.)

16 **THE COURT:** Please be seated.

17 So what was your point about Rule 50?

18 **MR. JACOBS:** What schedule would you like what on,
19 Your Honor? Since we're at that moment.

20 **THE COURT:** Well, technically speaking, at the end of
21 the defense case no Rule 50 motion was made. Nonetheless, I
22 will let you do it. I think you probably assumed you would be
23 able to do it later, since that was given to Google.

24 So Rule 50 motions, when do you want to make them? I
25 think both sides have Rule 50 motions, probably. I don't know.

1 **MR. JACOBS:** So last time the procedure was to submit
2 you an outline, to the Court an outline of our motion, and then
3 brief it on a subsequent schedule. That seemed to work quite
4 well.

5 **THE COURT:** All right. Let's get the outline
6 tomorrow and then have the actual brief due -- so the outline
7 is due tomorrow morning, 7:30. The brief is due 5:00 p.m. on
8 the 16th. Oppositions due 5:00 p.m. on the 17th.

9 **MR. JACOBS:** Thank you, Your Honor.

10 **THE COURT:** For both sides.

11 **MR. VAN NEST:** I'm sorry, Your Honor. The brief is
12 due the 16th at 5:00. And the reply is due the 17th at 5:00?

13 **THE COURT:** Or the opposition is.

14 **MR. VAN NEST:** The opposition is due -- I think you
15 said the 17th.

16 **THE COURT:** Is what I meant.

17 **MR. VAN NEST:** At 5:00. So the next evening.

18 **THE COURT:** That's correct.

19 Do you need more time? Possibly I will give you more
20 time, if you need it.

21 **MR. VAN NEST:** Could we have until 5:00 on the 18th?

22 **THE COURT:** That would be Friday.

23 **MR. VAN NEST:** All right. I'll live with the 17th.
24 Then if I need more time I'll ask for it. That's what we'll
25 try to do.

1 **THE COURT:** We'll shoot for that.

2 Now, my law clerk will hand out to you the
3 instructions.

4 Now, we've adjusted these to take into account your
5 stipulation on indirect infringement. And you will notice that
6 I have taken out all references to "direct infringement" and
7 just left "infringement." Because if you start talking about
8 direct infringement people are going to start wondering, well,
9 where do we get into the indirect part?

10 So I don't think you should have any problem with
11 this, but since there's only one type of infringement now on
12 the table I think we should just refer to it as "infringement."
13 Correct?

14 **MR. JACOBS:** Fine, Your Honor.

15 **MR. VAN NEST:** That's fine, Your Honor.

16 **THE COURT:** All right. So, otherwise, what I want to
17 do, since it's now 12:15, I want to give you until
18 1:00 o'clock. Let's come back here at 1:00 o'clock, and I want
19 to give you one last opportunity to point out any
20 fundamentally-wrong thing, or anything you think is just a
21 oversight on my part. In other words, something that would be
22 easy to correct.

23 But what I do not want to do is rehash and reargue
24 things that we've already beaten to death. If you've already
25 argued something and lost it, accept your loss with good grace

1 and move on to the next stage.

2 But, if it is something that is a new thing that
3 comes out of the blue, I want to give you a chance to say
4 something about it.

5 So there's been enough changes, and this has been a
6 moving target, possibly there could be something unintended
7 there that I want to give you a chance to, you know, express
8 concern about. And if it's unintended, I might -- you know,
9 you could be entirely right. So, please, take a look at it.

10 Is that enough time, 45 minutes?

11 **MR. JACOBS:** That's fine, Your Honor.

12 **MR. VAN NEST:** I think that's fine, Your Honor.

13 **THE COURT:** All right. You know the other drill.
14 You need to be -- if you're going to have an index -- are we
15 going to have an index to send in with the documents like we
16 did last time?

17 You think about it. I need to know whether I can
18 tell the jury there's going to be an index. You need to make
19 sure the box is in good order, and the box of exhibits is ready
20 to go into the jury room whenever the jury goes in there to
21 deliberate.

22 You know this time they will have the drill down.
23 They will already have a foreperson. We could have a verdict
24 in 20 minutes. And that's their prerogative. We could have --
25 it could take all week.

1 You know how it is. Last time it took quite much
2 longer than I thought it might. But we don't know. So we want
3 to have everything teed up and ready to go in so that we --
4 there won't be any snafus.

5 **MR. VAN NEST:** We can do an index, Your Honor. We
6 were successful last time, and I think we will be able to do
7 that this time. So we will get an index together and we'll get
8 the exhibits together. If we're going to do two hours of
9 closing tomorrow, we should have them ready to go.

10 **THE COURT:** No, it's not two hours. It's an hour and
11 15 minutes per side.

12 **MR. VAN NEST:** I was talking about, you know, in
13 total. Two and a half in total.

14 **THE COURT:** Two is not two and a half.

15 **MR. VAN NEST:** No, it's not. Did you think I was
16 trying to get a little time?

17 **THE COURT:** I don't know what you were trying to do.
18 Two is not two and a half. Fifteen minutes could make a great
19 deal of difference.

20 You all remember the basic ground rules. Last time
21 you both said "I think" so many times that I didn't interrupt
22 you. Remember your professional obligations on saying things
23 like "I think" and "I believe." Both of you did it, so I guess
24 it balances out.

25 Anything else before we break?

1 **MR. JACOBS:** Just one small thing, Your Honor.

2 The jury -- I'm not sure if we covered this before.

3 We have now stipulated away indirect infringement.

4 The jury got told some things about indirect
5 infringements in openings. It would be helpful if you could
6 explain to them that we have done our hard work to simplify the
7 issues for them --

8 **THE COURT:** If you two agree on a single sentence
9 that I can put into the instructions when we come back at
10 1:00 o'clock, that would take care of that.

11 **MR. JACOBS:** Great.

12 **THE COURT:** That's a legitimate point. I think
13 something like that ought to be in there. You two can agree on
14 a sentence.

15 **MR. VAN NEST:** Just a single sentence on that, Your
16 Honor.

17 **THE COURT:** That's all that's needed.

18 **MR. VAN NEST:** That's fine. We'll congratulate the
19 lawyers for their hard work --

20 (Laughter)

21 **MR. VAN NEST:** -- in streamlining this case for the
22 jury's deliberation, and get it all into a single sentence.
23 Yes, we will.

24 **THE COURT:** For the record, this time the plaintiff
25 left about 40 minutes on the table, in terms of time. The

1 defendant left, oh, more than two hours. According to my
2 notes, anyway.

3 All right. We will see you here at 1:00 o'clock.
4 Thank you.

5 (Whereupon there was a recess in the proceedings
6 from 12:19 p.m. until 12:58 p.m.

7 **THE COURT:** Okay, back to work.

8 So we've handed to you before the break a revised
9 version that attempted to capture the changes that would be
10 needed in light of your agreement on how to handle indirect
11 infringement. So I wanted to give you a chance to see what we
12 have done to see if there's some unintended error.

13 Anything that you wish to raise?

14 **MR. JACOBS:** We have nits separate from the question
15 you just posed, your Honor.

16 **THE COURT:** Nits would be fine. So, go ahead.

17 **MR. JACOBS:** Paragraph 18 is the only one we see any
18 issue with at the nit level, and that's on Line 19.

19 "Consider events that occurred prior to the
20 filing of this lawsuit on August 12, 2010."

21 **THE COURT:** Correct.

22 **MR. JACOBS:** And on 26, 27, there is a reference to
23 Oracle having to persuade that Google acted despite -- "a high
24 likelihood that Google's actions infringed a valid and
25 enforceable patent."

1 It says "validity and enforceability" --

2 **THE COURT:** That's true.

3 **MR. JACOBS:** We propose to just delete those words.

4 **THE COURT:** There is no evidence at all about
5 invalidity, so it's just going to be "a patent."

6 **MR. JACOBS:** "A patent," exactly. That would be our
7 proposal.

8 Just to note, I think we have agreed language to read
9 to the jury and we have our -- the issue that I believe you
10 reserved this morning on symbolic reference in Paragraph 11.

11 **THE COURT:** All right. Do you have nits on your
12 side?

13 **MR. PAIGE:** Yes, your Honor. We agree with the first
14 part of what they said in 18. It should be "on" rather than
15 "in."

16 In Paragraph 8, Line 17 we think that it should be,
17 "Google denies it infringes" as opposed to "infringed."

18 **THE COURT:** Wait a minute. "Infringes," okay. Yes.
19 All right.

20 **MR. PAIGE:** And then on Page 5, Line 6 we suggest
21 inserting the words "of the". So it reads:

22 "For the '104 patent all of the asserted
23 claims are independent claims."

24 **THE COURT:** All right.

25 **MR. PAIGE:** And those are our nits, your Honor.

1 Let me consult with my colleagues about their
2 proposed change to No. 18 that was just discussed.

3 **THE COURT:** Okay. I didn't understand what you --
4 you say you have some problem with No. 18?

5 **MR. PAIGE:** No. The change to 18 that was just
6 suggested, the removal of "valid and enforceable," let me just
7 consult for a moment.

8 **THE COURT:** It will just be confusing if we leave
9 that in since you don't have an invalidity case or an
10 enforceability case.

11 (Discussion held off the record
12 amongst counsel.)

13 **MR. PAIGE:** We don't have a problem with the removal
14 of "valid and enforceable" from Lines 26 and 27 in 18, your
15 Honor.

16 **MR. JACOBS:** Your Honor, we note that it also -- we
17 missed it last time, but it's on Lines 6 and 6 of Page 8.

18 **THE COURT:** All right. It will be excised there,
19 too.

20 **MR. JACOBS:** Thank you.

21 **THE COURT:** All right. Give me the language you
22 agreed on and where would you like to place it.

23 **MR. KAMBER:** I think I have that.

24 "You heard reference during opening
25 statements" --

1 **THE COURT:** Wait, wait. Tell me where you want it to
2 go.

3 **MR. PAIGE:** After -- I think we propose after
4 Instruction 17, your Honor.

5 **THE COURT:** All right. Okay. I want to write it out
6 slowly. So give it to me slowly, please.

7 **MR. KAMBER:** (As read)
8 "You heard reference during opening
9 statements to something called" --

10 **THE COURT:** Wait, wait, wait.

11 **MR. KAMBER:** Sorry.

12 **THE COURT:** You must be a speed writer. "To"?

13 **MR. KAMBER:** "...something called indirect
14 infringement."

15 **THE COURT:** Hmm-hmm.

16 **MR. KAMBER:** (As read)
17 "In order to simplify your work, the parties
18 have agreed that the only issue for you to
19 decide is whether Google infringes."

20 **THE COURT:** And you have to say, "and if so, whether
21 it was willful." Because otherwise when we get to the
22 willfulness part, they will think they don't have to decide
23 that.

24 **MR. KAMBER:** Fair enough, your Honor.

25 **THE COURT:** So, "whether Google infringes and if so,

1 whether it was willful?"

2 **MR. KAMBER:** Yes, your Honor. "And if so whether
3 that infringement was willful," or "if it was willful."
4 However you...

5 **THE COURT:** Okay. I will put that as part of 17.
6 Okay. What else?

7 **MR. PAIGE:** Your Honor, I think that the removal of a
8 number of instructions has obviated a number of our objections.
9 The only objection we will make for the record is to
10 Instruction 14, where the instruction says:

11 "Distributing or offering a product for free
12 constitutes a use or sale."

13 We understand you've decided that and we're not going
14 to argue it again, but wanted to preserve it for the record.

15 **MR. JACOBS:** We understand the previous objections
16 are reserved, your Honor. We won't repeat ourselves.

17 **THE COURT:** Thank you. All right. What else?

18 **MR. JACOBS:** Then that just leaves, I think, your
19 Honor's determination on "symbolic reference."

20 **THE COURT:** I'm going to leave the claim construction
21 just as it is. I think these are points that can be argued
22 from the record and the patents themselves and that you -- it
23 would be tilting the balance too much to weigh in on your
24 respective arguments on the existing claim construction. So
25 we will not add to or subtract from the existing claim

1 construction.

2 Now, in the event that the jury were to ask a
3 question on that, that would be a different problem. I might
4 have to do it in that circumstance. I may not have to do it.
5 So, so far they haven't asked for that, and I think it's best
6 to leave the claim construction as is.

7 Anything more?

8 **MR. JACOBS:** Nothing from us, your Honor.

9 **MR. KAMBER:** Nothing from us either, your Honor.

10 **THE COURT:** So we will try to get you today a --
11 first, did you look at the special verdict form now? I want to
12 make sure you are okay with that form.

13 **MR. JACOBS:** We are fine, your Honor.

14 **MR. KAMBER:** We're fine with it as well, your Honor.

15 **MR. VAN NEST:** Give us a moment, your Honor.

16 (Discussion held off the record
17 amongst defense counsel.)

18 **MR. JACOBS:** Actually, your Honor, I see one -- I
19 will wait for them.

20 (Brief pause.)

21 **THE COURT:** Yes?

22 **MR. JACOBS:** On the third question on willfulness, we
23 would propose as follows.

24 "Has Oracle proven by clear and convincing
25 evidence that Google willfully infringed one

1 or more claims of an asserted patent?"

2 **THE COURT:** Well, any objection?

3 **MR. KAMBER:** No, your Honor.

4 **THE COURT:** No? All right. "...one or more claims
5 of a asserted patent." Thank you.

6 That's it then, right?

7 **MR. VAN NEST:** That's it.

8 **MR. JACOBS:** Your Honor, I think this is just
9 catching things, your Honor.

10 "Has Oracle proven by a preponderance of the
11 evidence that Google infringes Claims 11, 27,
12 29, 39, 40 or 41 of the United States Patent
13 '104."

14 And the same with "Claims 1 or 20."

15 If they are thinking like computer programmers,
16 they --

17 **THE COURT:** Yes. Correct.

18 **MR. JACOBS:** Thank you, your Honor.

19 **MR. KAMBER:** No objection to that, your Honor.

20 One issue on three, it just seems somewhat
21 inconsistent. We have on one "No, is not proven." On two,
22 "No, is not proven." And on three it's, "No, not willful."

23 **THE COURT:** We're going to change "willful" in the
24 second to "not proven." So it will be, "Yes, willful." "No,
25 not proven."

1 **MR. JACOBS:** No objection, your Honor.

2 **THE COURT:** That's a good change.

3 **MR. BABER:** On the parenthetical on No. 3, your
4 Honor, maybe say something to make sure they only answer this
5 as to a patent which they found infringement. In other words,
6 they can't find infringement as to '104 and then answer
7 willfulness of another patent.

8 So it should be answer this question only for the
9 patent or patents for which you answered "yes" to a prior
10 question. If they find no infringement on one, they don't go
11 to three for that patent.

12 **MR. JACOBS:** No objection, your Honor.

13 **THE COURT:** I didn't get the way you phrased it, but
14 I have my own phrasing that captures the same thing.

15 All right. We'll file this soon and good luck to
16 both sides tomorrow morning.

17 **MR. JACOBS:** Thank you, your Honor.

18 **MR. VAN NEST:** Thank you, your Honor.

19 (Whereupon at 1:10 p.m. further proceedings
20 in the above-entitled cause was adjourned
21 until Tuesday, May 15, 2012 at 7:30 a.m.)

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CERTIFICATE OF REPORTERS

We, KATHERINE POWELL SULLIVAN and DEBRA L. PAS,
Official Reporters for the United States Court, Northern
District of California, hereby certify that the foregoing
proceedings in C 10-3561 WHA, **Oracle America, Inc., vs. Google,
Inc.**, were reported by us, certified shorthand reporters, and
were thereafter transcribed under our direction into
typewriting; that the foregoing is a full, complete and true
record of said proceedings at the time of filing.

/s/ Katherine Powell Sullivan

Katherine Powell Sullivan, CSR #5812, RPR, CRR
U.S. Court Reporter

/s/ Debra L. Pas

Debra L. Pas, CSR #11916, RMR CRR

Monday, May 14, 2012